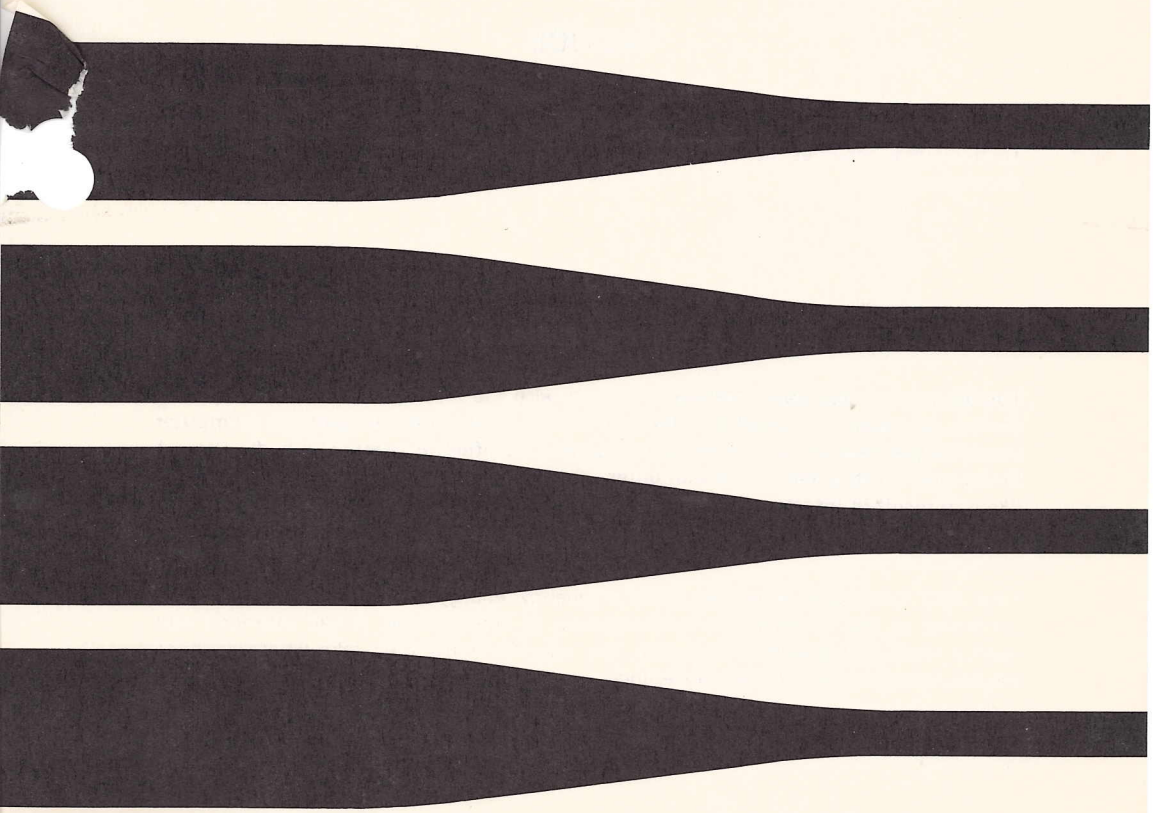
Issue 1
October 1984

AT&T 3B2/300 Computer Owner/Operator Manual

Select Code
305-400

Comcode
403778301



TRADEMARKS

The following is a listing of the trademarks that are used in this manual:

- ETHERNET — Trademark of Xerox Corporation
- TELETYPE — Registered trademark of AT&T Teletype
- UNIX — Trademark of AT&T Bell Laboratories
- WE — Trademark of AT&T Technologies
- WRITER'S WORKBENCH — Trademark of AT&T Technologies
- DOCUMENTER'S WORKBENCH — Trademark of AT&T Technologies
- INSTRUCTIONAL WORKBENCH — Trademark of AT&T Technologies.

NOTICE

The information in this document is subject to change without notice. AT&T Technologies assumes no responsibility for any errors that may appear in this document.

WARNING

This equipment has been certified to comply with the limits for a Class A computing device, persuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to other electronic equipment.

Your 3B2 Computer generates radio frequency energy. If not installed and used according to the manufacturer's instructions in this manual, it can interfere with nearby radio and television reception. The operator must then take whatever steps are necessary to correct the interference.

AT&T 3B2/300 COMPUTER
OWNER/OPERATOR
MANUAL

Update Issue 1

December 10, 1984

This update inventory should be placed behind the *3B2Computer Owner/Operator Manual* title page. This inventory identifies the pages that have been added or changed by the *3B2 Computer Owner/Operator Manual Update* (305-401), dated December 10, 1984.

Revised Page	Date
2-5	12/10/84
2-7	12/10/84
2-10	12/10/84
2-11	12/10/84
2-12	12/10/84
2-13	12/10/84
2-14	12/10/84
2-15	12/10/84
2-16	12/10/84
2-17	12/10/84
2-18	12/10/84
2-19	12/10/84
3-14	12/10/84
3-15	12/10/84
3-16	12/10/84
3-16a	12/10/84
3-16b	12/10/84
3-17	12/10/84
4-23	12/10/84
E-1	12/10/84

UPDATE TO

AT&T 3B2/300 COMPUTER
OWNER/OPERATOR MANUAL
ISSUE 1 — October 1984

File this Update with the *3B2 Computer Owner/Operator Manual* (305-400).

This Update concerns the following:

1. ***Installing utilities software:*** When you are installing utilities software, the computer does a check to make sure sufficient free space is available on the hard disk to install the utilities. If not enough free space is available, a message is displayed telling you how many blocks are needed for the utilities. To create free disk space you can remove other utilities or directories and files that you have created. In order to ensure that adequate free space is available, remove at least 100 blocks more than the amount indicated in the message.

— — —

2. ***Initial software setup:*** Page 4-8 indicates that you can quit the setup procedure at any time by entering a `q<CR>`. Entering a `q<CR>` will not exit the setup procedure. Setup interprets a `q` as a "no" response and continues to prompt you until the procedure is completed.

   In order to exit the setup procedure, depress the BREAK key. This returns you to the initial condition of a "`Console Login`" prompt.

   There are two other ways to access the setup procedure:

   1) By entering the Simple Administration command **sysadm setup**

   2) By going through the menu structure.

The response to the BREAK key is different if you access setup by one of these methods. If you access setup via the command **sysadm setup**, you will exit Simple Administration if you depress the BREAK key. However, if you access the setup procedure through the menu structure, depressing the BREAK key exits the setup procedure but you do not exit Simple Administration. To exit Simple Administration under these conditions, enter a `q` when you are prompted to "`Press the RETURN key to see the system menu.`"

— — —

3. ***Simple Administration TTY MANAGEMENT menu:*** If you select one of the interactive routines accessed from the TTY MANAGEMENT menu (**baud**, **disable**, **enable**), you cannot exit the routine by entering a `q<CR>` after the prompt: "`Enter tty line (11-14 ... contty).`" The only input the programs will accept after this prompt is the name of a tty line. If you want to exit these routines while this prompt is displayed, depress the BREAK key. (If you access these routines directly, that is, using a command such as **sysadm disable**, you will exit Simple Administration if you depress the BREAK key after the prompt "`Enter tty line.`")

— — —

4. ***Simple Administration subcommand lsgroup:*** Executing the Simple Administration subcommand **lsgroup** displays a list of all the groups that are on the computer. Included on this list are group names, group ID numbers, and members of each group. Whenever you add a group, assign new members to a group, delete a group, or delete members from a group, the group list should be updated automatically. The list is updated when you add or delete a group; however, it is not updated when you add a user to a group. Users who are assigned to a group do have permission to access the files of other users in the group, even though the list does not show them as members.

— — —

5. ***Initial Power Up:*** When the 3B2 Computer is powered up for the first time, it automatically runs a file system check to check for possible damage to the hard disk during shipment. If the file system check passes, this is a good indication that no damage was done to the hard disk. However, a more thorough check of the hard disk can be made by executing the **dd** command.

   On Page 4-7 the " Initial Software Setup" section tells you to enter **setup** after you receive the Console Login prompt. Instead of entering **setup**, enter **root** and wait for the root prompt, #. After the prompt appears, enter the following command line:

   ```
   dd if=/dev/rdsk/c1d0s6 of=/dev/null bs=45k
   ```

   This command will read the entire disk (approximately 2 minutes for a 30-megabyte disk). If any of the following messages are displayed during the execution of the above command, the disk could be damaged, and your service representative should be notified immediately.

   ```
   WARNING: unreadable CRC hard disk error:/
            maj/min = 17/0  block # = ####
   ```

   or:

   ```
   WARNING: hard disk: cannot access sector #,/
            head #, cylinder #, on drive 0
   ```

   or:

   ```
   dd read error: I/O error
   ```

   After you verify the hard disk, hold the CONTROL key down and momentarily depress the **d** key to log off. After Console Login: appears, enter **setup** and do the initial software setup.

— — —

6. ***Reset date if NVRAM is invalidated:*** If any information in NVRAM is changed, for example, when using the floppy key, the following message is displayed:

```
Time of Day Clock Needs Restoring:
Change using "sysadm datetime" utility
```

When the Simple Administration command **sysadm datetime** is executed, the date and time are printed, and you are prompted to change them if they are not correct. Even if the time and date are correct, enter the time and date when you are prompted by the computer. Otherwise, the "`Time of Day Clock Needs Restoring`" message will be printed every time you power up the computer.

— — —

7. ***Notes on Single-User Mode:*** The 3B2 Computer can operate in a number of different operating states. The normal operating state is multi-user mode. This is the mode you are in when you log in, and the mode you are in most of the time. However, there are some administrative tasks, such as installing and removing utilities, that are performed in single-user mode.

While the computer is in single-user mode, some computer operations do not perform the same way that they do in multi-user mode. For example, you cannot power down the computer by depressing the power switch. Power can be removed from the single-user mode by entering the following command:

```
shutdown -i0 -g0 -y
```

Another operation that does not work in single-user mode is logging off. Before logging off return to multi-user mode. Do this by entering the following command:

```
init 2
```

If you accidentally attempt to log off in single-user mode by holding the CONTROL key and depressing the **d** key, you will not be able to communicate with the computer. In order to regain communications, change the terminal baud rate to 300 baud.

— — —

8. ***Release 1.0 floppy disk file systems:*** A floppy disk file system that was made on a 3B2 Computer with UNIX System V Release 1.0 (or 1.0.x) cannot be mounted on a 3B2 Computer with UNIX System V Release 2.0 system using the Simple Administration subcommand **mountfsys** unless modifications are made to the floppy disk. The procedure for modifying the floppy disks is found in System Administration Utilities documentation.

— — —

9. ***System logins:*** System logins are special logins used by very knowledgeable users to do special tasks. A part of setting up the 3B2 Computer is to assign passwords to these logins. Several of these logins — **sys**, **nuucp**, and **rje** — will not work unless certain optional utilities are installed. In order to login as **sys**, the Source Utilities must be installed. The system login **nuucp** requires the Basic Networking Utilities to be installed; and to login as **rje**, the 3BNET Utilities must be installed.

— — —

10. ***Loss of power:*** If the 3B2 Computer loses power due to a power failure, for example, a power blackout or accidentally pulling the power cord, wait 10 minutes before turning the power on. This will ensure a normal power-up sequence.

— — —

This Update also includes the following replacement pages:

1. Remove Page 2-5 and replace it with the enclosed Page 2-5. The new page contains changes to the list of firmware benefits.

2. Remove Page 2-7 and replace it with the enclosed Page 2-7. The new page changes the rated storage capacity of the larger size hard disk from 32-megabytes to 30-megabytes.

3. Remove Pages 2-10 through 2-16 and replace them with the enclosed Pages 2-10 through 2-19. The new pages include printers and terminals supported by AT&T Information Systems (AT&T-IS).

4. Remove Pages 3-14 through 3-17 and replace them with the enclosed Pages 3-14 through 3-17. The new pages include references to terminals supported by AT&T Information Systems (AT&T-IS).

5. Remove Page 4-23 and replace it with the enclosed Page 4-23. The new page corrects the spelling of ADMINISTRATION in the heading.

6. Remove the Table of Contents for Chapter 4 and replace it with the enclosed Chapter 4 Table of Contents. The new Table of Contents corrects the spelling of ADMINISTRATION in the "SIMPLE ADMINISTRATION" reference.

7. Remove Appendix E (Page E-1) and replace it with the enclosed Appendix E. The new page changes the rated storage capacity of the hard disk options from " 10 or 32 MB" to " 10 or 30 MB."

CONTENTS

Chapter 1. INTRODUCTION
Chapter 2. SYSTEM FEATURES
Chapter 3. UNPACK AND SETUP
Chapter 4. OPERATION
Chapter 5. TROUBLE
Chapter 6. GUIDE TO DOCUMENTS
Appendix A. CABLES AND CONNECTORS
Appendix B. USING FLOPPY DISKS
Appendix C. MOVING AND PACKING
Appendix D. PINOUTS
Appendix E. SPECIFICATIONS
Glossary
Software Information Bulletins

Chapter 1

INTRODUCTION

PAGE

MANUAL ORGANIZATION 1-3

IMPORTANT REMINDERS 1-4

Chapter 1

INTRODUCTION

This manual tells you how to setup and to begin operating your AT&T 3B2/300 Computer (Figure 1-1).

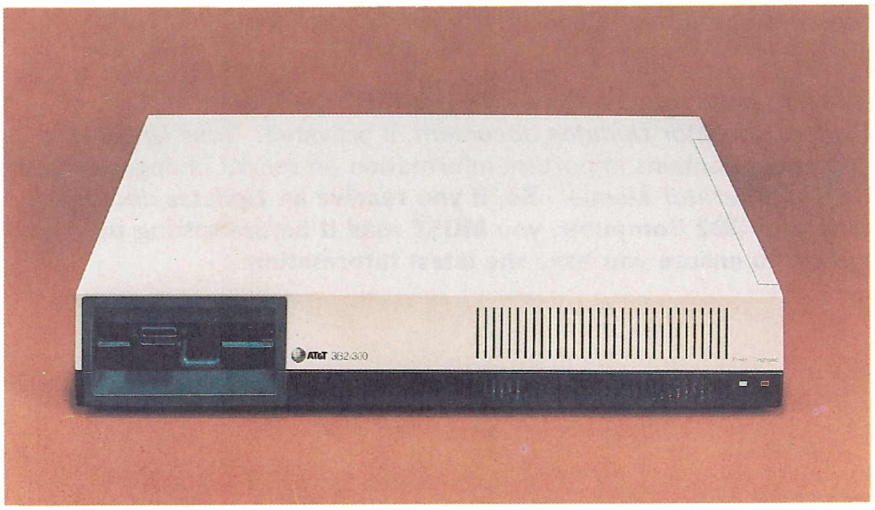


Figure 1-1. AT&T 3B2/300 Computer

Your 3B2 Computer is a multiuser, desktop 32-bit supermicro that uses the WE* 32000 Processor and the UNIX† Operating System. Even if you have little computer experience, you should find this manual easy to read and follow. Later on, you will also find your *3B2 Computer Owner/Operator Manual* a valuable reference to keep handy.

This manual is one of many documents written for your 3B2 Computer system. These documents tell you all about your hardware, your software, and their operation. Important information to answer any technical question can be easily found if you know how to use your 3B2 Computer documents.

So, understanding a little about the documentation for your 3B2 Computer is the key to using and better understanding your 3B2 Computer system. **Documentation is so important that a separate chapter is devoted to it for your benefit.** Please make it a point to read Chapter 6, " GUIDE TO DOCUMENTS," very soon. This will be time well spent.

One particular manual to read is your *3B2 Computer Owner/Operator Updates document*, if provided. Your *Updates document* contains important information on recent changes to your *Owner/Operator Manual*. **So, if you receive an *Updates document* with your 3B2 Computer, you MUST read it before setting up your system to ensure you have the latest information.**

* Trademark of AT&T Technologies

† Trademark of AT&T Bell Laboratories

MANUAL ORGANIZATION

The remainder of this manual is divided into the following five chapters:

- Chapter 2, " SYSTEM FEATURES," describes all the parts of a 3B2 Computer system.
- Chapter 3, " UNPACK AND SETUP," gives you the steps to ready your 3B2 Computer and console terminal for operation.
- Chapter 4, " OPERATION," tells you how to begin using your 3B2 Computer.
- Chapter 5, " TROUBLE," tells you how to clear trouble.
- Chapter 6, " GUIDE TO DOCUMENTS," explains the organization and ordering of available documents for your 3B2 Computer system.

Several special items included at the end of this manual are:

- Appendix A, " CABLES AND CONNECTORS," lists and describes cables and connectors available for your 3B2 Computer.
- Appendix B, " USING FLOPPY DISKS," tells you all about handling and using floppy disks.
- Appendix C, " MOVING AND PACKING," shows you how to properly move your 3B2 Computer.
- Appendix D, " PINOUTS," gives you specific pinout data for serial ports and 8-pin—to—25-pin connectors.
- Appendix E, " SPECIFICATIONS," gives you the major technical specifications for your 3B2 Computer.
- Glossary — a universal glossary for all 3B2 Computer documents.

- Software Information Bulletins — is a special tab behind which you can store your Software Information Bulletins.

IMPORTANT REMINDERS

1. Read your *3B2 Computer Owner/Operator Manual* and your *3B2 Computer Owner/Operator Updates document* (if provided) before installing or using your 3B2 Computer.

2. Never unplug your 3B2 Computer or remove power to it until you have properly turned it off.

3. Never depress the RESET switch under any circumstances.

4. Protect your 3B2 Computer from:

Sunlight	Chemicals
Heat	Vibration
Cold	Grime

Static Electricity

Chapter 2

SYSTEM FEATURES

PAGE

HARDWARE 2-2

SOFTWARE 2-4

FIRMWARE 2-5

OPTIONAL FEATURES 2-5

- Hardware 2-6
- Utilities 2-7
- Programming Languages 2-8
- Workbenches 2-8
- DEMON 2-9

PERIPHERALS 2-10

Chapter 2

SYSTEM FEATURES

Your 3B2 Computer supports a wide range of configurations and options for any office environment. This chapter describes many of the features available for your 3B2 Computer system. Some of these descriptions are technical, and they may confuse some users at this time. So, if you are more interested in setting up your 3B2 Computer at this time, skip to Chapter 3. You can read this chapter later at your convenience.

HARDWARE

Figure 2-1 highlights your 3B2 Computer. Major hardware features are:

- Lightweight
- Compact size for desk top or vertical mounting
- Two standard serial ports (RS-232-C)
- Provisions to add more serial ports
- Provisions to add parallel printer interfaces
- 5.25 inch floppy drive
- A nonvolatile Random Access Memory (RAM) for saving essential information that is normally lost when power is removed. In addition, the nonvolatile RAM saves information that is vital to your service representative in the event of a system failure
- A battery-powered, nonvolatile, time-of-day clock that retains time when power is removed
- Supports a wide variety of RS-232-C terminals.

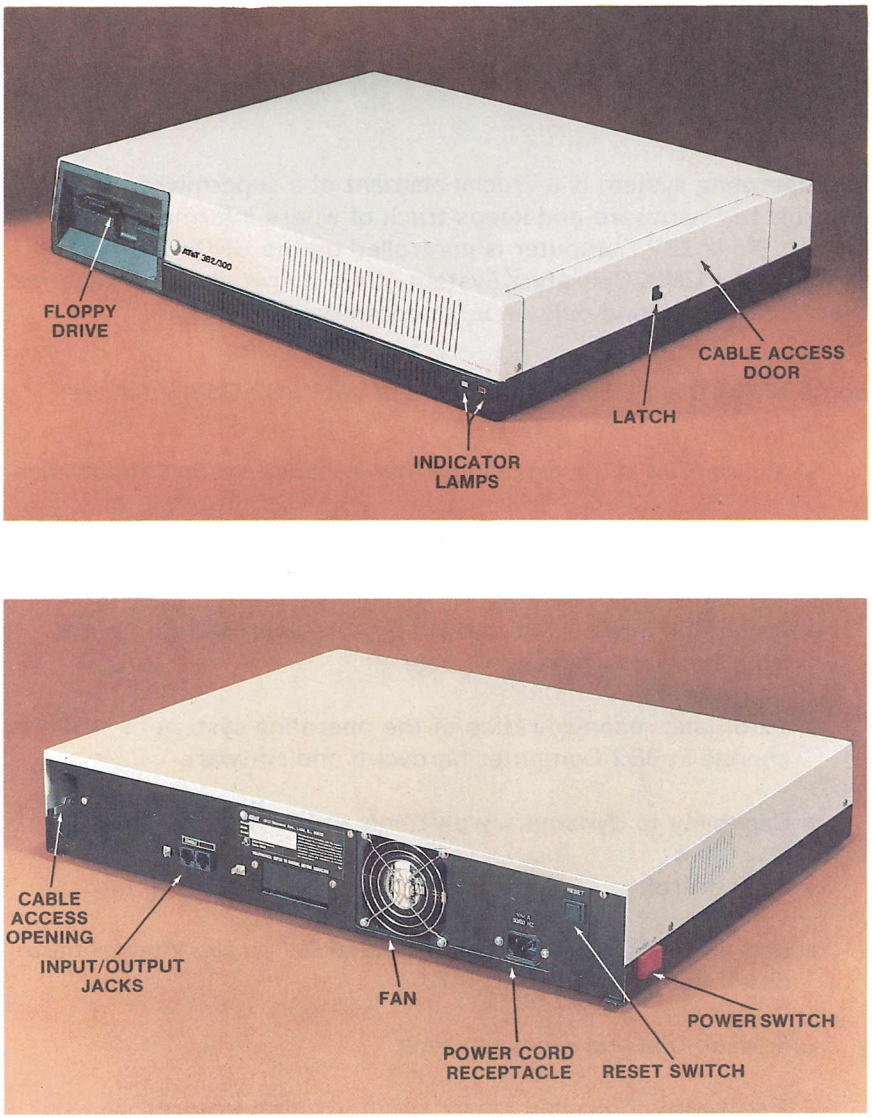


Figure 2-1. 3B2 Computer Features

SOFTWARE

The operating system is a crucial element of a supermicro. It controls the hardware and keeps track of where information is stored. Your 3B2 Computer is controlled by the UNIX Operating System. The UNIX Operating System offers many advanced features that once were found only on large computer systems.

Some of the major software features of your 3B2 Computer are:

- A variety of software utilities that enhance system capabilities
- Automatic diagnostics and automatic execution of the operating system whenever the unit is powered up
- Automatic power shutdown to protect your 3B2 Computer from too much heat or voltage
- Automatic reconfiguration of the operating system to reflect a change in 3B2 Computer hardware and software
- Capability to dynamically partition and format floppy disks
- Job control
- Bad block handling to map around areas on the integral hard disk if damaged
- Advisory file and record locking
- A software-controlled power shutdown that ensures system integrity.

For more information on your UNIX Operating System, see your *UNIX System User Guide* and your *UNIX System V Release 2.0 User Reference Manual*. These documents also came with your 3B2 Computer.

FIRMWARE

Your 3B2 Computer has firmware — a set of special software instructions. Firmware is special software because it is stored in read-only memories. In some instances, such as turning power on or turning power off, firmware instructions are executed automatically. In other instances, such as running diagnostics, your 3B2 Computer must be placed in an interactive firmware operating mode. Whether automatic or interactive, firmware gives you additional operating and administrating convenience. Some benefits of firmware are:

- Diagnostics - demand, interactive, and normal diagnostics can run from the firmware mode
- Initialization - checks sanity during power-up sequence
- Determines the system configuration for use by the self-configuration software.

OPTIONAL FEATURES

The optional features offered with your 3B2 Computer make it possible to configure a system to satisfy many different applications. You can select different size hard disks, increase main memory, add input/output interfaces, add terminals and printers, connect to a computer network, and much more. Several categories of optional features exist: Hardware, Utilities, Programming Languages, Workbenches, and a special feature called DEMON (debug monitor). These are discussed below, but others are planned. Ask your service representative for a recent list of available features.

Hardware

AT&T 3BNET

The Local Area Network (3BNET) feature allows you to connect your 3B2 Computer to a local computer network to share information and expand the capabilities of your 3B2 Computer. This connection helps you communicate locally without the delay of mail services or personal relay messages. This network can be a combination of 3B Computers or other machines equipped with ETHERNET*, a standard protocol in the field of networking. 3BNET can be user installed except for the connection to the network coax cable.

Expanded Input/Output Capability

Your 3B2 Computer comes with two serial ports: console port and contty port. The Expanded Input/Output Capability feature adds ports so you can connect more peripherals to your 3B2 Computer. This feature consists of Expanded Input/Output feature cards. Each feature card has four RS-232-C serial ports and one parallel port for a parallel printer. You can add up to four feature cards, giving a total of eighteen serial ports and four parallel ports. This feature can be user installed.

RAM Expansion

The Random Access Memory (RAM) Expansion feature provides additional main memory to improve efficiency by increasing available buffers. This feature can expand RAM to 1 megabyte or 2 megabyte, and can be user installed.

* Trademark of Xerox Corporation

10- or 30- Megabyte Hard Disk

Increasing internal disk capacity may involve replacement of the existing hard disk. There are two sizes of hard disks offered with the 3B2 Computer: 10- or 30- megabyte. Replacement of hard disks should only be done by an authorized service representative.

Utilities

The following is an alphabetical list of available 3B2 Computer utilities. Utilities are special software packages that increase the usefulness of your 3B2 Computer system for specific applications. Some utilities come with your 3B2 Computer at no additional charge. Other utilities are optional and can be purchased and added separately. For more information on the utilities that came with your 3B2 Computer, refer to the *Software Information Bulletins* or the *Utilities Guides* that came with them. For more information on optional utilities, see your service representative.

Utilities Provided with Your 3B2 Computer

The following utilities come on floppy disks. Essential Utilities is the only one installed and ready to use. You can load the others on hard disk at any time by using a simple install procedure. The floppy disks are also used for backup.

Directory and File Management Utilities provides commands that reduce directory and file manipulation operations to single-step instead of multiple steps commands.

Editing Utilities consists of several text editors.

Essential Utilities provides commands that are used in day-to-day processing.

Help Utilities is an interactive, menu-driven program that helps the user to understand the UNIX System.

Security Administration Utilities (U.S. markets only) adds encryption capability to protect data either stored or transmitted.

System Administration Utilities contains commands to administer your 3B2 Computer system.

Terminal Information Utilities contains routines and a database that allows a user to write screen-oriented programs.

User Environment Utilities contains commands to enhance the user's UNIX System environment interface.

Optional Utilities

Other optional utilities are available for the 3B2 Computer. Examples are Basic Networking, Graphics, Line Printer Spooling, Spell, and Terminal Filters. See your service representative for a current list of optional utilities.

Programming Languages

The following programming languages can be purchased separately.

1. BASIC
2. C
3. FORTRAN
4. PASCAL

Workbenches

The following workbenches can be purchased separately.

1. DOCUMENTER'S WORKBENCH* program

* Trademark of AT&T Technologies

2. INSTRUCTIONAL WORKBENCH* software program

3. WRITER'S WORKBENCH* programming system

DEMON

DEMON, abbreviation for debug monitor, supports debugging software , as well as verifying and testing hardware. DEMON allows developers to look at all central processing unit registers, to insert breakpoints, and to perform virtual-to-physical address translation. As a development aid, DEMON can download software from a host or support

* Trademark of AT&T Technologies

PERIPHERALS

A wide variety of peripheral devices (input/output devices such as terminals, printers, and modems) can be used with your 3B2 Computer. At the time of this publication, AT&T Technologies and AT&T Information Systems (AT&T-IS) are supporting the following peripherals for the 3B2 Computer:

Terminals

- TELETYPE* Model 5410 Display Terminal
- AT&T-IS DATASPEED† 4410 Display Terminal
- TELETYPE Model 5425 Buffered Display Terminal
- AT&T-IS DATASPEED 4425 Buffered Display Terminal
- TELETYPE Model 5620 Dot-Mapped Display Terminal

Draft Quality Printers

- AT&T Technologies Model DQP-10
- AT&T-IS 470
- AT&T-IS 475
- AT&T-IS 5310
- AT&T-IS 5320

Letter Quality Printers

- AT&T Technologies Model LQP-40
- AT&T-IS 455

AT&T Automatic Dial Modem

---

* Registered trademark of AT&T Teletype Corporation

† Registered trademark of AT&T

TELETYPE Model 5410/DATASPEED 4410 Terminal

This terminal is an asynchronous, serial, video display terminal. It features a selectable 80- or 132-column screen. The low-profile keyboard has a standard typewriter layout with eight programmable function keys. (Figure 2-2)

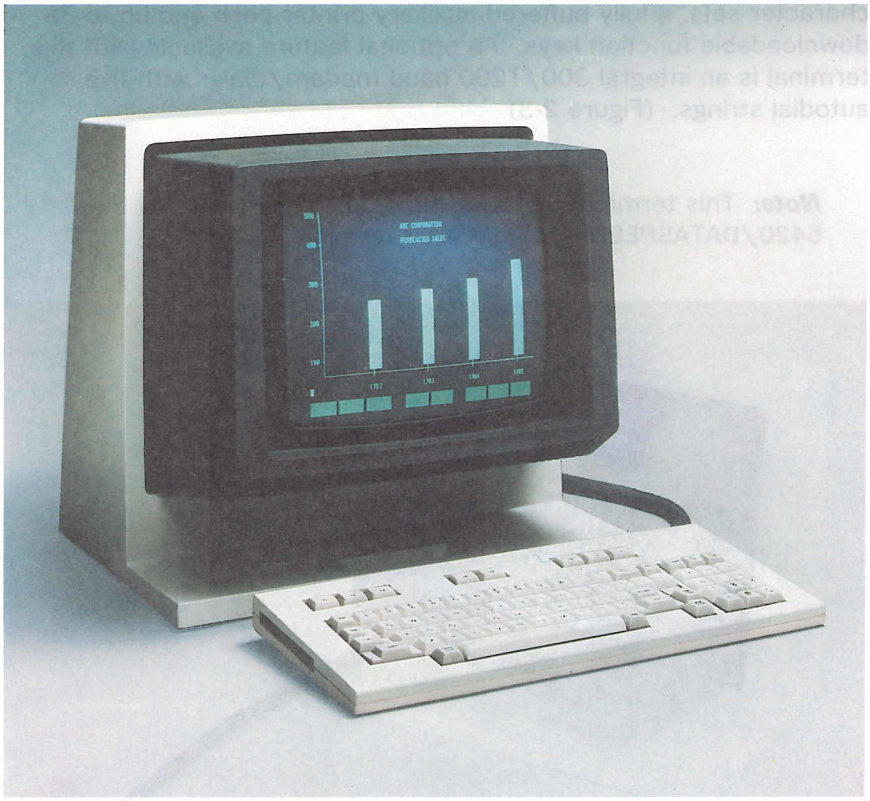


Figure 2-2. 5410/4410 Terminal

TELETYPE Model 5425/DATASPEED 4425 Terminal

The 5425/4425 terminal has all the features of the 5410/4410 terminal plus features like full screen windowing, five different character sets, a fully buffered auxiliary printer port, and up to 38 downloadable function keys. An optional feature available with this terminal is an integral 300/1200 baud modem/dialer with five autodial strings. (Figure 2-3)

Note: This terminal replaced the TELETYPE 5420/DATASPEED 4415 buffered terminal.

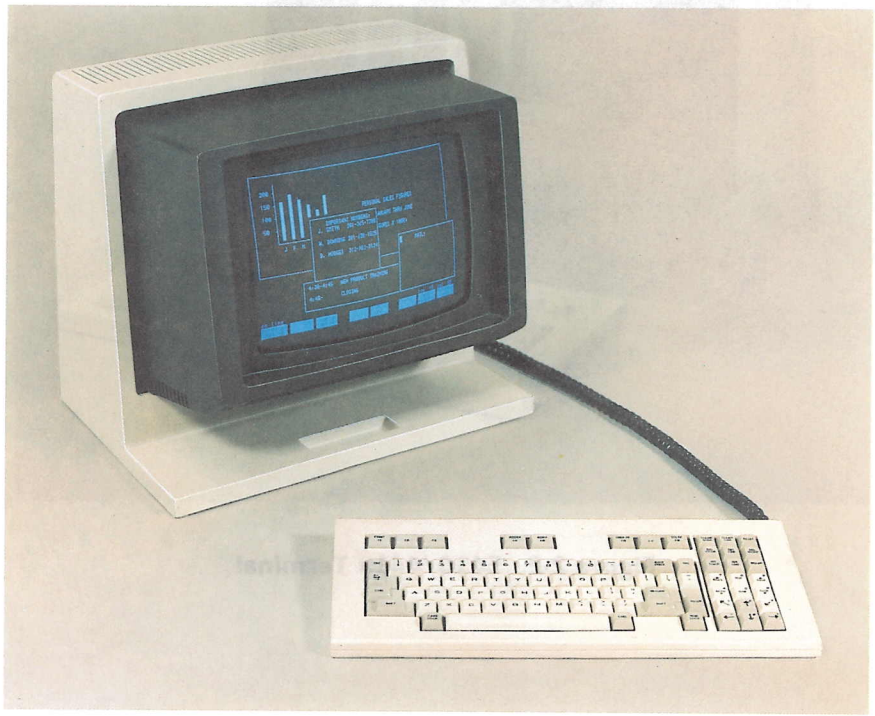


Figure 2-3. 5425/4425 Terminal

TELETYPE Model 5620 Dot-Mapped Display Terminal

The Model 5620 Terminal is a dot-mapped display terminal featuring the WE 32000 microprocessor system. This model features 256K RAM dual-port memory with transparent refresh and 1000 dots-per-square-inch resolution on a 15-inch nonglare screen. A dot addressable screen gives the user the capability to create full graphics, define character fonts, and construct line drawings. The electronic mouse on this terminal easily creates and controls up to six window displays. (Figure 2-4)

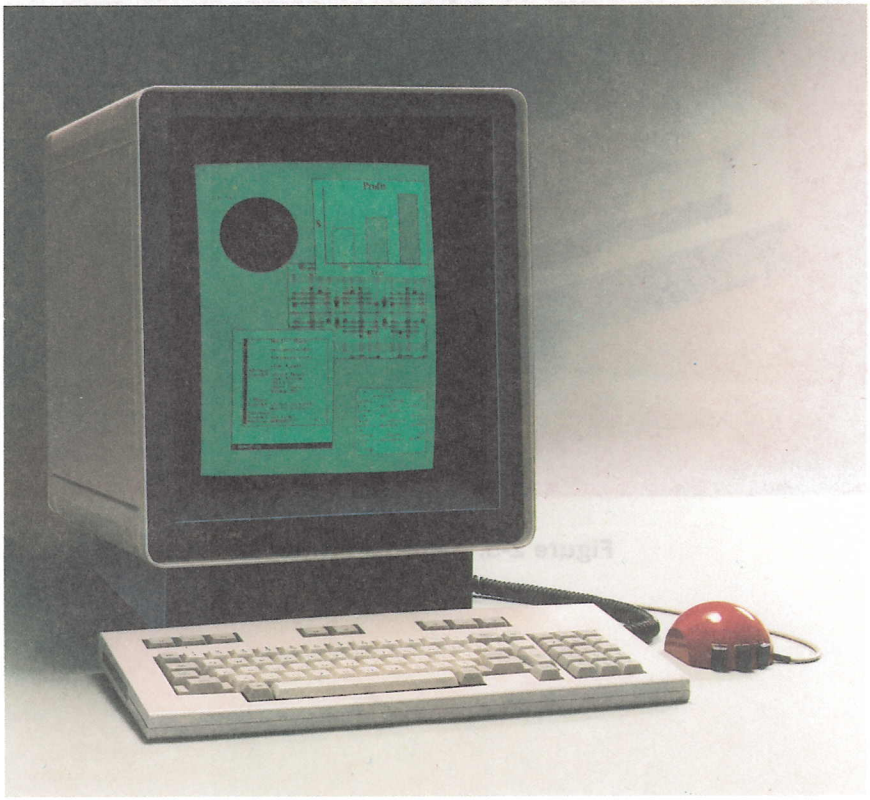


Figure 2-4. Model 5620 Dot-Mapped Display Terminal

Model DQP-10 Printer

The DQP-10 printer is a dot-matrix serial impact printer capable of bidirectional printing at 120 characters per second. At six or eight vertical lines per inch, the DQP-10 printer will print up to 80 characters per line with 10 characters per inch. Single sheet (8-1/2 x 11 inches) or continuous fanfold paper, up to 10 inches wide, can be used. (Figure 2-5)

Figure 2-5. DQP-10 Printer

470 and 475 Printers

The 470 and 475 are compact, desktop, dot-matrix, serial impact printers capable of bidirectional printing at speeds up to 120 characters per second. They can print up to 132 characters per line, in a compressed font mode, at 16.8 characters per inch. The friction paper feed and integral tractor/pinfeed mechanism can handle paper up to 10 inches wide. The only difference between the two printers is the type of interface. The 470 comes equipped with a 36-pin parallel interface and the 475 with a serial RS232-C interface. (Figure 2-6)

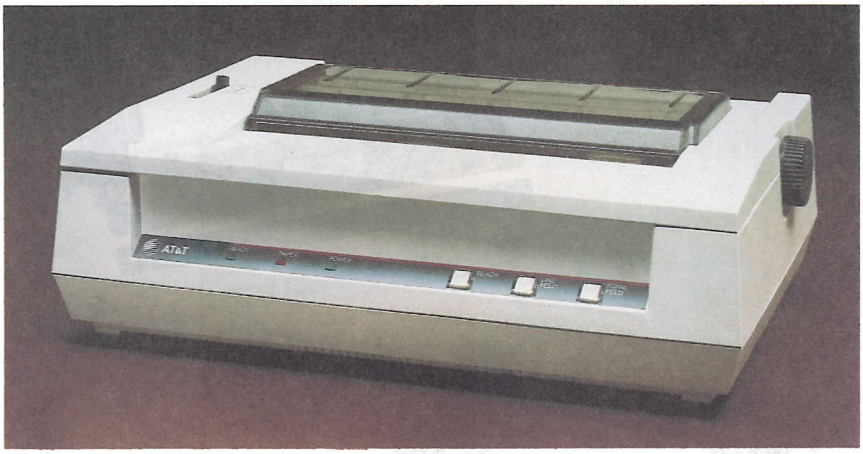


Figure 2-6. 470/475 Printer

5310 and 5320 Printers

The 5310 and 5320 are dot-matrix, bi-directional, logic-seeking printers that offer sophisticated graphics capabilities. They can print up to 200 characters per second. These printers offer a wide range of form and paper handling options. Carriage size is the only difference between these two printers. The 5310 has a compact 80 column carriage and the 5320 has a wide 132 column carriage. The 5310 can print up to 132 characters per line and the 5320 can print up to 220 characters per line. (Figure 2-7)

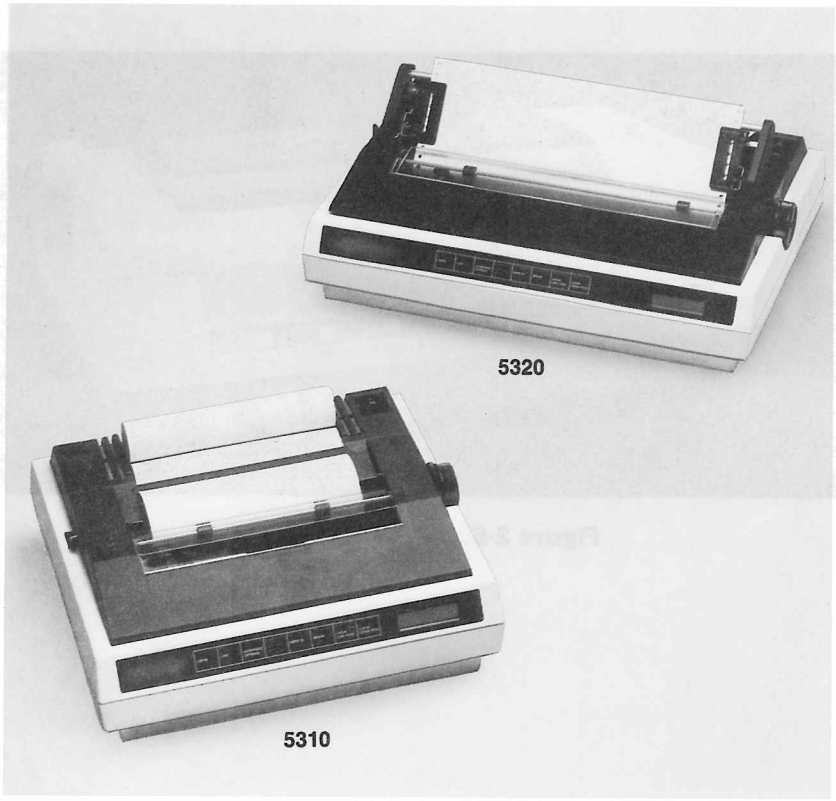


Figure 2-7. 5310 and 5320 Printers

Model LQP-40 Printer

The LQP-40 Printer is a daisywheel letter-quality serial/parallel printer with a 48,000 byte data buffer. At six or eight vertical lines per inch, the LQP-40 Printer uses proportional fonts with speeds up to 18 characters per second. Single sheet (8-1/2 x 11 inches) or continuous fanfold paper, up to 16-1/2 inches wide, can be used. (Figure 2-8)

Figure 2-8. LQP-40 Printer

455 Printer

The 455 printer is a daisywheel letter-quality printer capable of speeds up to 55 characters per second. The printer is compatible with both serial and parallel interfaces. Friction and tractor feeds will handle paper up to 15 inches wide. As many as 197 characters can be printed on a single line and a variety of font styles can be achieved by changing the daisy wheel. (Figure 2-9)

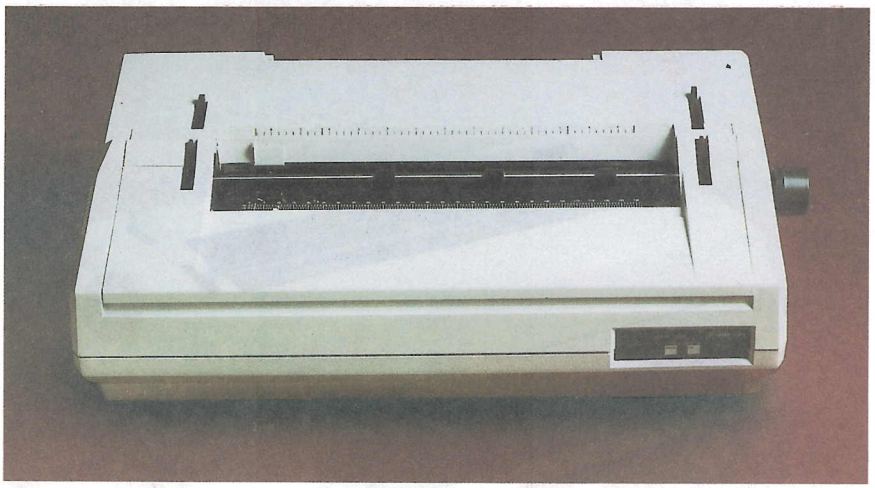


Figure 2-9. 455 Printer

AT&T Automatic Dial Modem

The AT&T Automatic Dial Modem is an intelligent modem that can be connected to a 3B2 Computer or to a terminal. When connected to a 3B2 Computer, it links the 3B2 Computer to other UNIX Systems over the telephone network by using the Basic Networking Utilities. This link allows you to share information and resources between computers. When connected to a terminal, the AT&T Automatic Dial Modem can be used to dial any one of ten numbers stored in its memory. (Figure 2-10)

Figure 2-10. AT&T Automatic Dial Modem

Chapter 3

UNPACK AND SETUP

PAGE

SELECTING A LOCATION 3-1

UNPACKING 3-6

LOOKING IT OVER 3-8

SETTING TERMINALS OPTIONS 3-14

TELETYPE Models 3-14

Other Terminal Types 3-17

CONNECTING CONSOLE TERMINAL 3-18

CONNECTING POWER 3-20

CONNECTING OTHER PERIPHERALS 3-20

Chapter 3

UNPACK AND SETUP

SELECTING A LOCATION

Here is some information to help you select a location for your 3B2 Computer.

- SIZE — The 3B2 Computer is a compact machine: 22 inches (56 cm) wide, 17 inches (43 cm) deep, about 4 inches (9 cm) high. It weighs 30 to 40 pounds (9 to 16 kilograms), depending on the features included.

- VOLTAGE REQUIREMENTS — You need to have access to a 115 v~ or 220-240 v~ 50/60 Hertz outlet. This outlet should not have a switch in the circuit. This prevents accidentally removing power to your 3B2 Computer when operating. A 7-foot power cord with the proper plug comes with your 3B2 Computer. **Make sure the outlet is properly grounded, and the voltage rating of the outlet matches the voltage rating shown on the back of your 3B2 Computer.**

- ENVIRONMENT — Your 3B2 Computer will function well in any office environment free of excessive humidity, dust, and smoke. Air conditioning is not necessary, but there should not be temperature extremes either. Generally speaking, if you are comfortable, so is your 3B2 Computer.

- UNIT PLACEMENT — Although air conditioning is not required, position your 3B2 Computer so there is ample space all around it for free air flow. Do not push it back into a corner or flush against a wall. You can buy a Vertical Mounting Bracket to mount your 3B2 Computer beside a desk or worktable. See Figure 3-1.

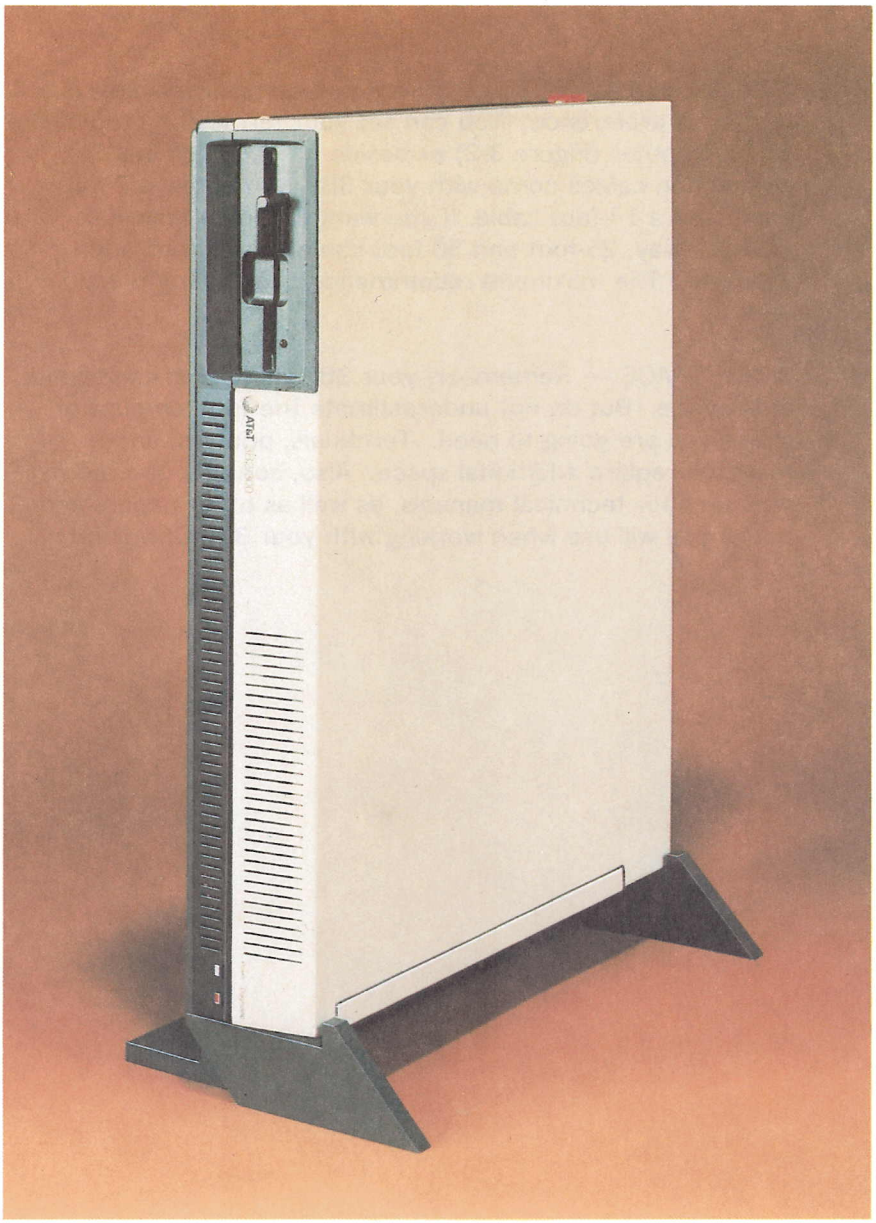


Figure 3-1. Vertical Mounting Bracket

- TERMINAL PLACEMENT — Where you set your terminal is a matter of preference. You can set your terminal on top of the 3B2 Computer (Figure 3-2) or beside it. Two terminal connection cables come with your 3B2 Computer: a 7-foot cable and a 14-foot cable. If you want to locate terminals further away, 25-foot and 50-foot cable accessories are available. The maximum recommended cable length is 50 feet.

- WORK SPACE — Remember, your 3B2 Computer itself needs little space. But do not underestimate the total amount of space you are going to need. Terminals, printers, and modems require additional space. Also, consider the room you need for technical manuals, as well as other papers and books you will use when working with your 3B2 Computer.

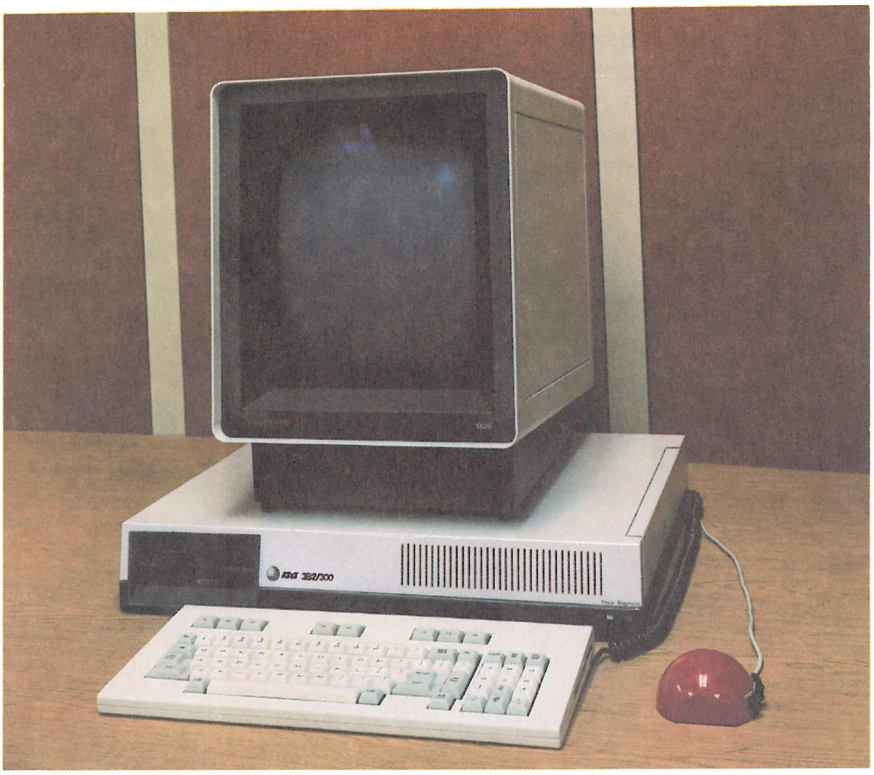


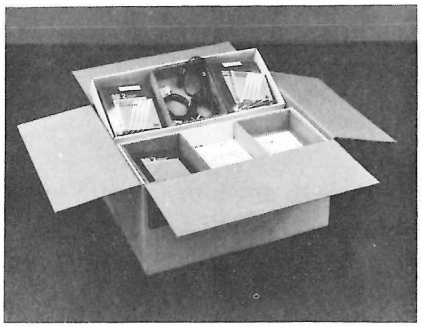
Figure 3-2. 3B2 Computer with Model 5620 Terminal

UNPACKING

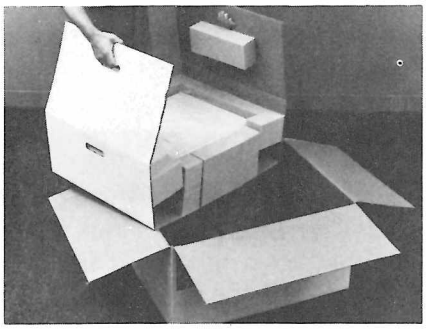
1. Carefully unpack your 3B2 Computer according to Figure 3-3.

2. Using the " CHECKLIST" that came in the box, check the contents for missing or damaged items. If you find any, contact your service representative.

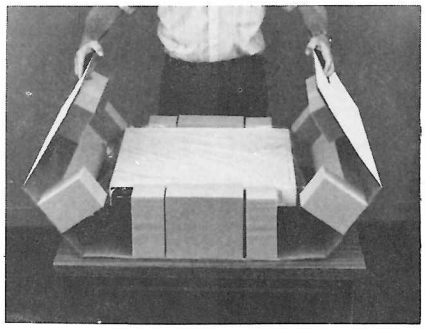
3. Put all the packing material back into the box. Save the box and packing material in case you ever need to repack and move your 3B2 Computer.



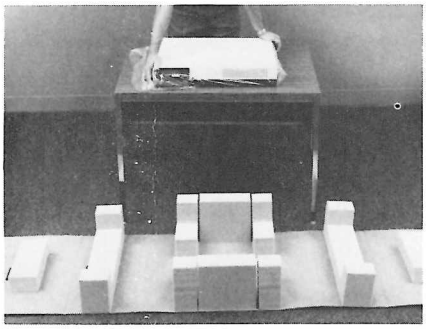
(a) Remove Top Cartons



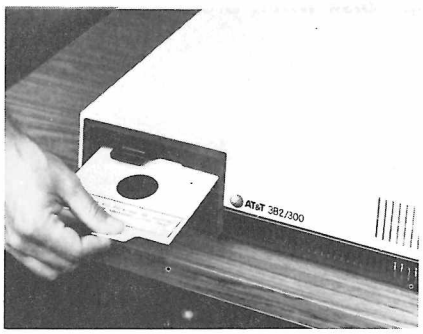
(b) Remove 3B2 Computer



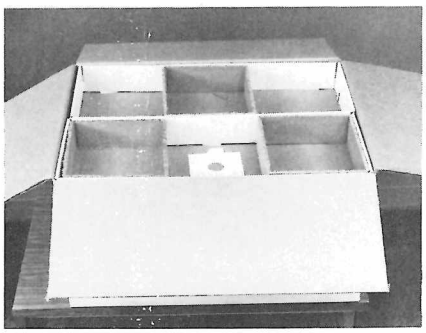
(c) Uncrate



(d) Remove Plastic Cover



(e) Remove Floppy Cardboard



(f) Save Shipping Material

Figure 3-3. Unpacking

LOOKING IT OVER

Before you go any further, take some time to get familiar with your 3B2 Computer. First, look at the front while referring to Figure 3-4. On the lower right-hand side are two lights. One light is labeled POWER and the other light is labeled DIAGNOSTIC. Whenever the power is on, the POWER light is on or blinking. The DIAGNOSTIC light goes on and off to show changes in the state of the 3B2 Computer. The DIAGNOSTIC light comes on during the power up, diagnostics, and UNIX System initialization. During normal operations, the DIAGNOSTIC light will be off. If errors occur during normal operations, the DIAGNOSTIC light will come on to let you know something is wrong.

The most obvious item on the front of the cabinet is the floppy disk drive. This drive takes standard 5-1/4 inch floppy disks (double sided, double density, 96 tracks per inch).

There is a small light above the slot where the floppy disks are inserted. This light is called the floppy disk drive light. It lights when the 3B2 Computer is accessing information on the floppy disk.

Caution: Do not remove a floppy disk when the floppy disk drive light is on.

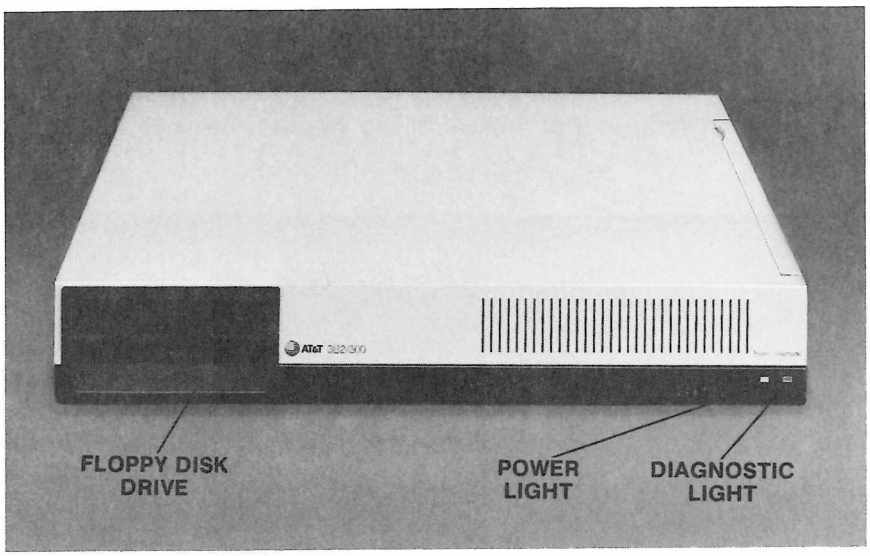


Figure 3-4. Front View

On the left side of the 3B2 Computer, toward the rear, is the power switch (Figure 3-5). It is a rocker switch with three positions: ON, neutral, and STANDBY. This type of switch remains in the neutral or rest position except when you push it to either the ON or STANDBY position. As soon as you release it, the switch returns to the neutral position.

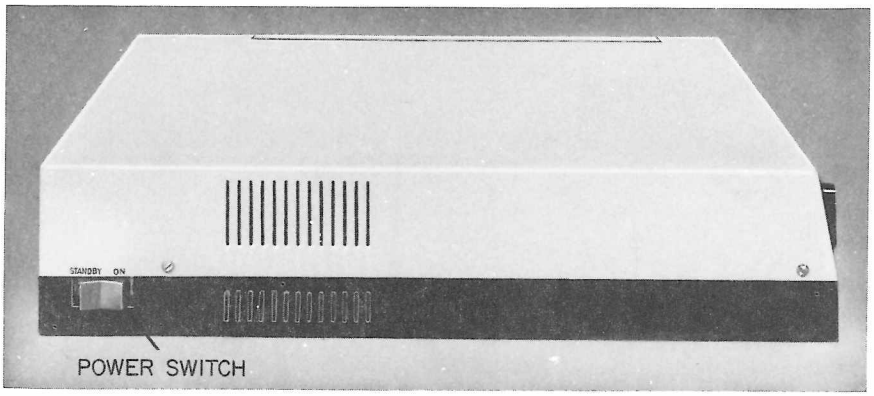


Figure 3-5. Left Side

The cable access door takes up most of the right side (Figure 3-6). This is where you connect additional devices and optional feature cards.

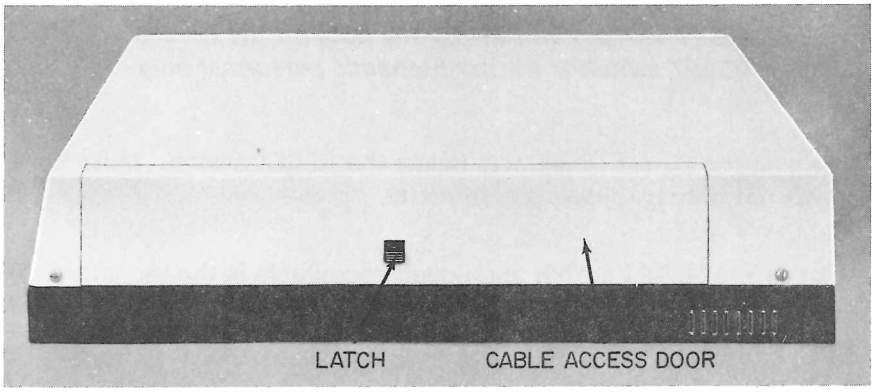


Figure 3-6. Right Side

Now turn your 3B2 Computer around and look at the back (Figure 3-7). Starting on the upper right-hand side locate the RESET switch.

Warning: Do NOT depress the RESET switch. Depressing the RESET switch can destroy the data on the hard disk. The RESET switch is for maintenance personnel only.

Examine the power receptacle below the RESET switch. Make sure it was not damaged during shipment.

Next to the RESET switch and power receptacle is the fan guard. Be sure the area in front of the fan is always free from obstructions so your 3B2 Computer stays cool.

Next to the fan is an expansion module jack. If you add an external hard disk, you connect here.

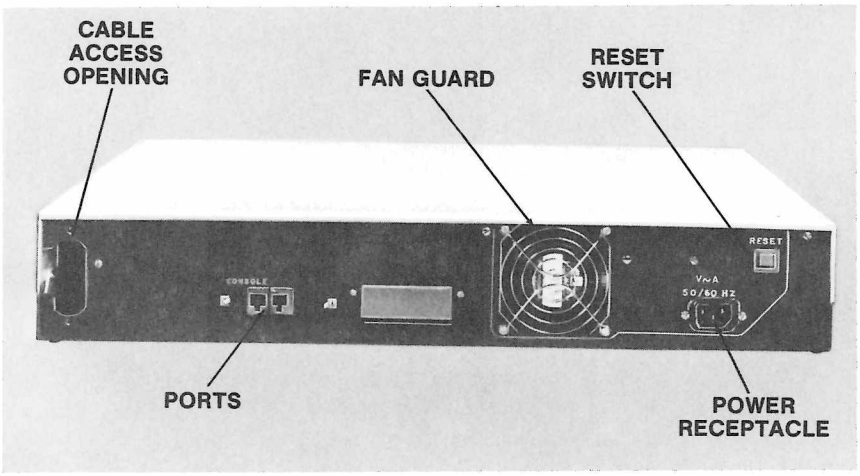


Figure 3-7. Rear View

Next, notice the two modular telephone jacks. These are 8-pin jacks that provide two serial RS-232-C input/output interfaces or ports. The one on the left is labeled " CONSOLE," and you must only connect your main terminal to it. Although not labeled, the one on the right is called the contty port. You can connect any serial device to it by using the proper cables and connectors (see Appendix A).

The main terminal administers your 3B2 Computer system and must connect to the console port. When the main terminal is used to administer your 3B2 Computer, it is called the console terminal. Otherwise, it can also be used as a working terminal. If only one terminal is connected to the 3B2 Computer, you must connect it to the console port. Additional peripherals are connected to the contty port or to other expansion ports provided by an optional Expanded Input/Output Capability feature.

> ***Note:*** Under normal circumstances, a terminal connects to the console port for the initialization sequence to complete. However, there is a " work around" for Other Equipment Manufacturers (OEMs) to use a 3B2 Computer without a console terminal (for example, a security monitor). In these cases, the " data terminal ready" and " data carrier detect" pins are looped together on the console port. See Appendix D for pinout data or see your service representative for more information.

On the far left-hand side is an oval shaped opening. Cables to connect additional terminals, printers, and other features are routed through this opening.

SETTING TERMINALS OPTIONS

DATASPEED and TELETYPE Terminals

Although your 3B2 Computer can operate with a variety of terminals, it is specifically designed to use AT&T Information Systems (AT&T-IS) DATASPEED terminals and TELETYPE terminals. The following procedure tells you how to properly set up these terminals.

1. Unpack and inspect your terminal.

2. Read the section in your terminal user manual on terminal setup procedure.

3. Plug in your terminal and turn it on.

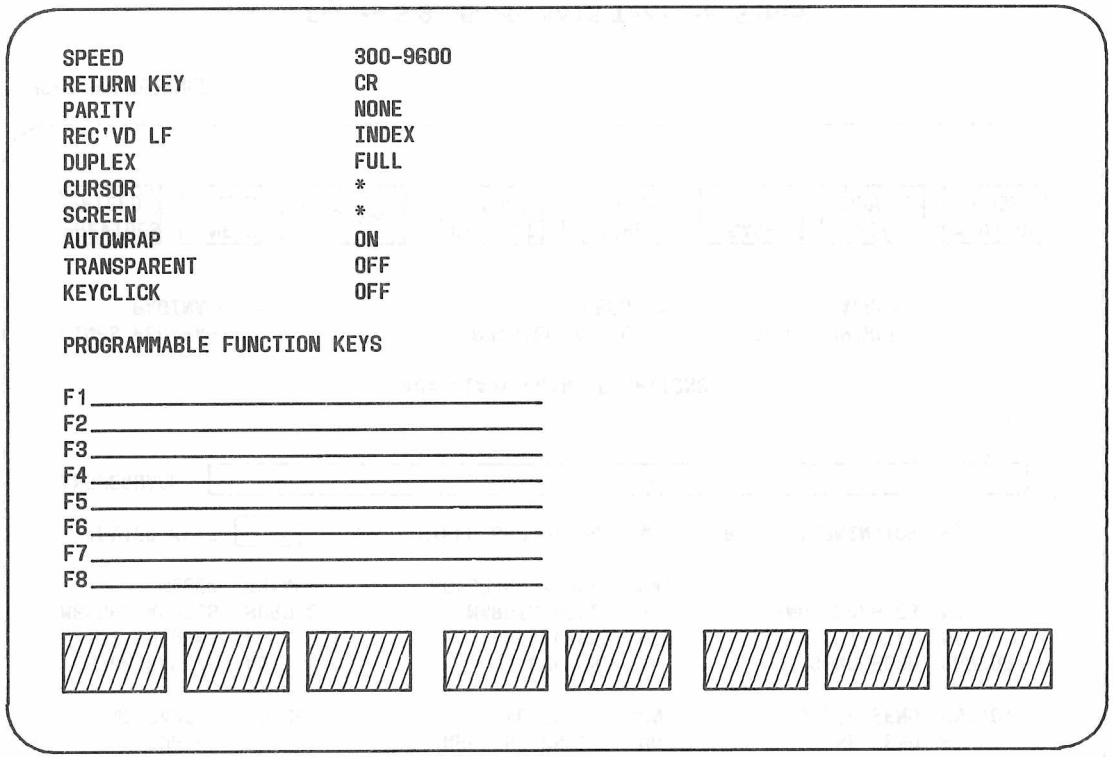
4. Set terminal options:

TELETYPE 5410/DATASPEED 4410	Figure 3-8
TELETYPE 5420/DATASPEED 4415	Figure 3-9
TELETYPE 5425/DATASPEED 4425	Figure 3-9a
TELETYPE 5620	Figure 3-10.

   If console terminal, always set speed to 9600 baud.

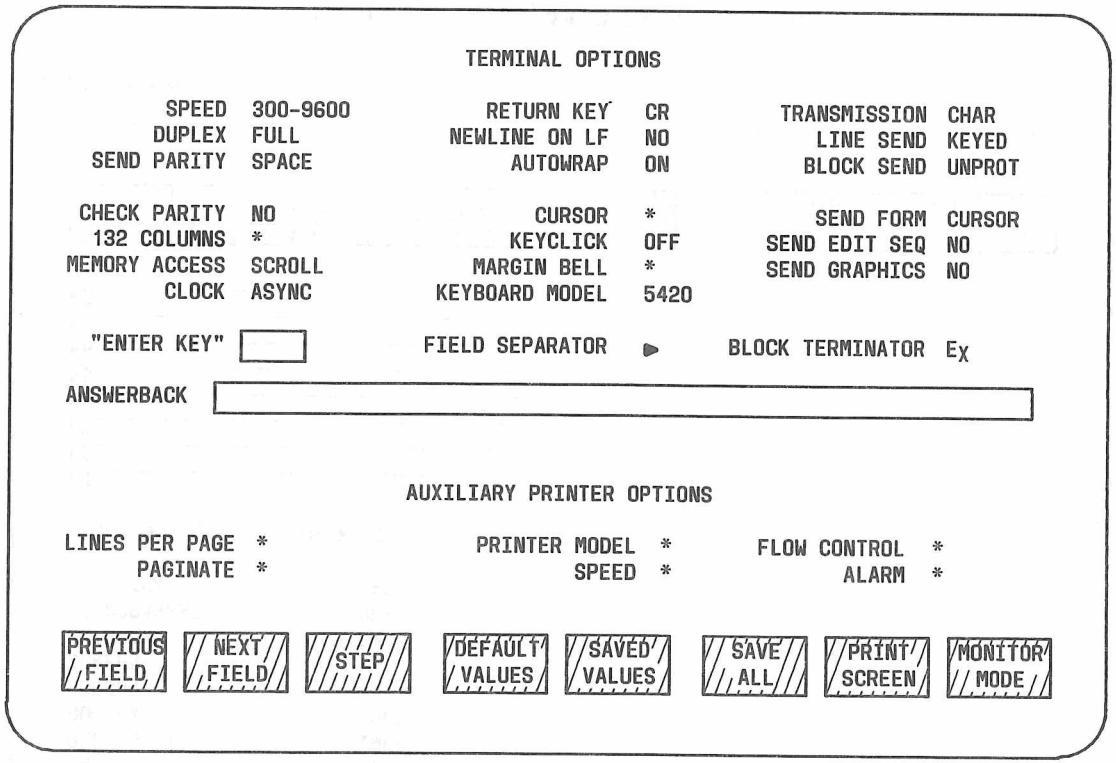
5. Double check your settings.

6. Turn off your terminal.



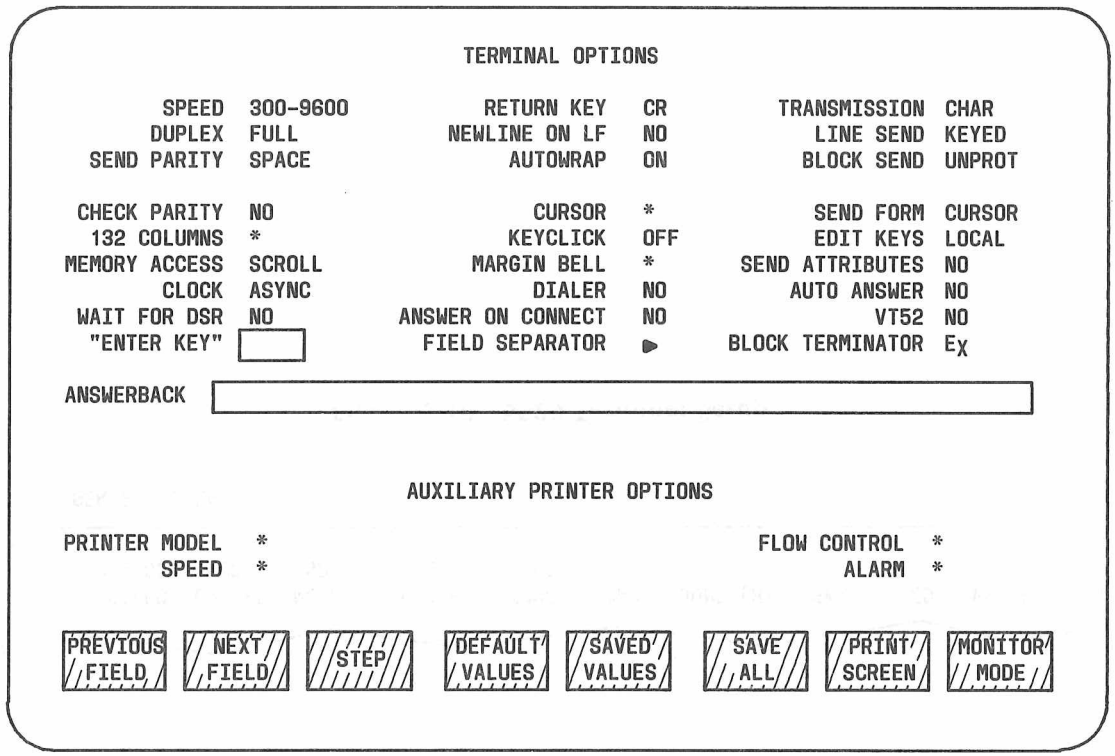
* USER PREFERENCE

Figure 3-8. 5410/4410 Terminal Setup



* USER PREFERENCE

Figure 3-9. 5420/4415 Terminal Setup



* USER PREFERENCE

Figure 3-9a. 5425/4425 Terminal Setup

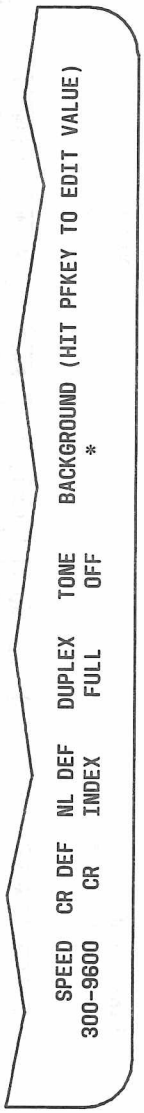


Figure 3-10. 5620 Terminal Setup

Other Terminal Types

In addition to these DATASPEED and TELETYPE terminals, any asynchronous terminal supported by the UNIX Operating System can be used with your 3B2 Computer. The terminal settings must be:

- Full duplex
- 8-bit ASCII interface
- Parity of " none" or space, depending on terminal
- If console terminal, must be 9600 baud.

For more information, refer to " terminals" in your *UNIX System V Release 2.0 User Reference Manual.*

CONNECTING CONSOLE TERMINAL

After setting your console terminal:

1. Place your 3B2 Computer where you plan to use it.

2. Set your console terminal where you want it.

3. Using a terminal connection cable, connect the end with the ground lead to the console jack on the back of your 3B2 Computer. Simply align the 8-pin modular connector and push in until you hear a click. Then connect the ground lead (Figure 3-11).

   Note: Always connect your main terminal to your console port first.

4. Connect the other of the terminal connection cable to your 8-pin—to—25-pin male RS-232-C connector (Figure 3-12).

5. Align and push the 25-pin connector onto the jack on the back of the terminal. Be very careful not to bend the pins.

6. Using the screw provided, fasten the connector to the terminal.

7. Make sure the power cord is plugged in.

8. Your console terminal is now ready for operation with your 3B2 Computer.

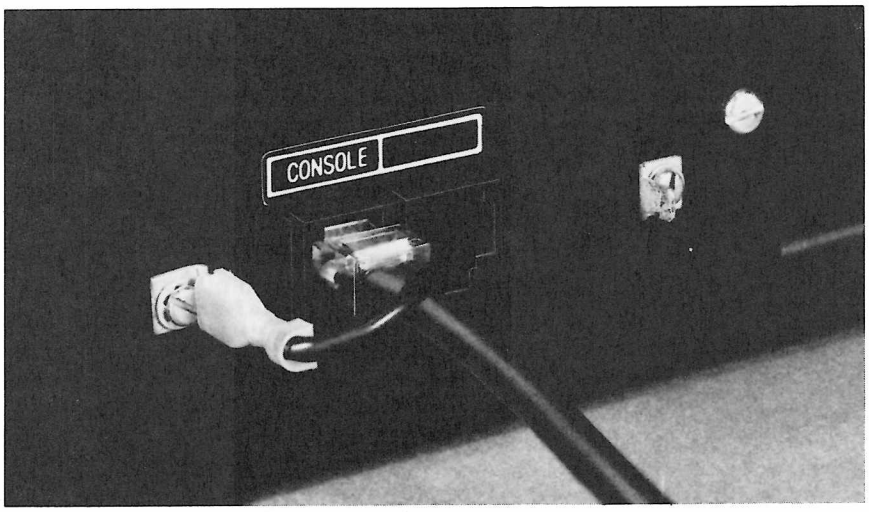


Figure 3-11. Console Port Connection

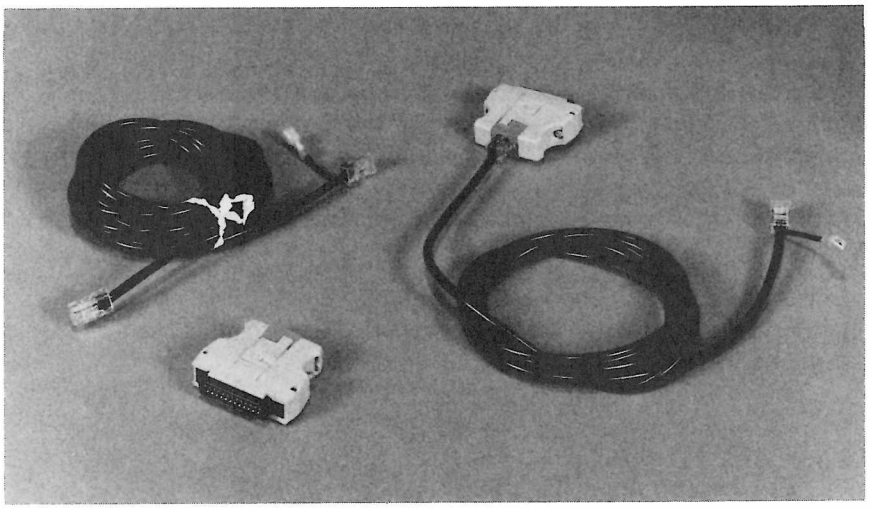


Figure 3-12. Male RS-232-C Connector and Terminal Cable

CONNECTING POWER

1. Connect the power cord to the receptacle on the back of your 3B2 Computer.

2. Connect the other end of the power cord to an outlet.

3. Your 3B2 Computer is now ready for operation, but read Chapter 4 before you turn it on.

CONNECTING OTHER PERIPHERALS

If you have a peripheral to connect to your contty port, you can do it now or later. You must setup both the device and the contty port to be compatible. Setting terminal options was discussed earlier in this chapter. If you are connecting a printer or a modem, refer to the manual that came with it for option setting instructions.

You can set the contty port in one of two ways. " SIMPLE ADMINISTRATION" in Chapter 4 shows you how by using the TTY Management Menu (under Machine Management). The other way makes direct changes to the inittab file. See your *3B2 Computer System Administration Utilities Guide* for more information.

If your 3B2 Computer came with ports provided by the optional Expanded Input/Output Capability feature, refer to that manual for connecting peripherals to expansion ports.

Chapter 4

OPERATION

PAGE

USING THE " UNIX " SYSTEM 4-1

INPUTTING 4-1
- Terminals 4-1
- Typing Tips 4-2

APPLYING POWER — FIRST TIME 4-3
- Initial Power Up 4-3
- Initial Software Setup 4-7
- Logging On and Off 4-12
- Turning Off 4-12

MORE SOFTWARE SETUP 4-14
- Making a Floppy Key and Changing Firmware Password 4-14
- Other Tasks 4-16

SECURITY 4-18
- Access Permission 4-18
- Data Encryption 4-19
- Passwords 4-19
- Floppy Key 4-20
- Helpful Hints 4-21

SIMPLE ADMINISTRATION 4-23
- Menus 4-23
- Menu Descriptions 4-24
- Subcommand Descriptions 4-28
- Simple Administration Example 4-40
- Direct Access to Simple Administration Tasks 4-44

INSTALLING AND REMOVING UTILITIES SOFTWARE 4-45
- Disk Space Requirements 4-45
- Installing Utilities 4-45
- Removing Utilities 4-48

Chapter 4

OPERATION

USING THE " UNIX " SYSTEM

If you are not familiar with using the UNIX Operating System, see your *UNIX System V User Guide*. This guide tells you about prompt signs, logins, passwords, shell commands, and root. These are things you need to know about the UNIX System before you turn on your 3B2 Computer for the first time.

If your 3B2 Computer will be part of a network, you also need to know about " node names." Node names are discussed in your *3B2 Computer System Administration Utilities Guide*.

INPUTTING

Terminals

In order to begin using your 3B2 Computer, you need a console terminal. The console terminal is like any other terminal except it is connected to the console port. Plus, it can also be used to supervise the 3B2 Computer. Chapter 3 told you how to configure and connect your console terminal. The user guide that came with your terminal tells you how to operate it.

Typing Tips

At times, this manual directs you to enter specific commands. As you enter these, make sure you enter uppercase and lowercase letters exactly as shown in this manual. Most communication with your 3B2 Computer is in lowercase letters.

Commands begin after a prompt symbol (usually a $ sign) and end with a carriage return (usually a RETURN key). A carriage return signals the 3B2 Computer to start executing the command just entered. On many terminals, the carriage return key is labeled RETURN. Others may use ENTER, NEWLINE, or something else. Throughout this manual the symbol <CR> means to depress your RETURN key.

$ command<CR>

AT&T 3B2 Computer documents use the following convention to illustrate user inputs and 3B2 Computer responses. These conventions are used in text and representations of screen displays.

```
This style of type is used to show system generated
responses displayed on your screen.

This style of bold type is used to show inputs
entered from your keyboard that are displayed on your
screen.

These bracket symbols <> identify inputs from the
keyboard that are not displayed on your screen, such
as <CR> carriage return, <CTRL d> control d,
<ESC g> escape g, passwords, and tabs.

This style of italic type is used for notes that
provide you with additional information.
```

Correct typing errors in one of several ways. Use the BREAK key to start over.

```
$ daet<BREAK>
$ date<CR>
```

If you do not have a BREAK key, you can use the symbol @ instead.

```
$ daet@
date
```

To erase specific characters, use the symbol #.

```
$ daet##te<CR>
```

The 3B2 Computer sees " date" as intended. (If desired, you can redefine the erase character to the BACK SPACE key later.)

And finally, remember that password entries are never shown on your screen as you type them in. Enter them the same as any input and follow them with a carriage return. Usually, the prompt for a password is `Password:`.

APPLYING POWER — FIRST TIME

Before applying power for the first time, read this section at least once. Then, turn on your 3B2 Computer and do some necessary setup tasks and practice logging in. Allocate about one hour, without interruptions, for these procedures.

Initial Power Up

1. Turn on console terminal and wait for cursor to appear.
2. Make sure latch on floppy drive is up (horizontal).
3. Momentarily press ON switch.

4. Your 3B2 Computer begins whirring and printing terminal messages. Also, the indicator lamps flicker. See Figure 4-1 for a sequence of events during power up.

ELAPSED TIME (SECONDS)	ACTION	POWER LIGHT	DIAGNOSTIC LIGHT	MESSAGES	SYSTEM CONDITION
<0	-	OFF	OFF	-	POWER OFF
0+	DEPRESS POWER SWITCH	ON	ON	-	POWER ON; DISK SPIN-UP BEGINS
3	-	ON (BLINKING)	ON	SELF-CHECK	SANITY TESTS BEGIN
35	-	ON (STEADY)	OFF	-	DISK IS UP TO SPEED; SANITY TESTS COMPLETED
40	-	ON	ON	DIAGNOSTICS	DIAGNOSTICS BEGIN
45	-	ON	OFF	DIAGNOSTICS PASSED	LOADING OF UNIX SYSTEM BEGINS
80	-	ON	OFF	-	UNIX SYSTEM LOADED
	-	ON	OFF	SYSTEM IS COMING UP. PLEASE WAIT. SYSTEM IS READY.	SYSTEM IS BEING INITIALIZED
90	-	ON	OFF	CONSOLE LOGIN:	SYSTEM IS READY

Figure 4-1. Power-Up Sequence

5. After two minutes, your terminal display should look like Figure 4-2, and only your POWER lamp should be lighted.

```
SELF-CHECK

DIAGNOSTICS  PASSED

UNIX System V Release 2.0 3B2 Version 1
unix
Copyright (c) 1984 AT&T Technologies, Inc.
All Rights Reserved

               Time of Day Clock needs Restoring:
               Change using "sysadm datetime" utility
The system is coming up.  Please wait.

This machine has not been used as a customer machine yet.  The messages that
follow are from checking the built-in file systems for damage that might have
occurred during shipment.  As long as you do not see either of the messages
                                   BOOT UNIX
or                           FILE SYSTEM WAS MODIFIED
all is well.  If either message does come out, call your service representative.
However, the machine is still usable unless I tell you otherwise.
I will now start checking file systems.

  /dev/dsk/c1d0s2
  File System: usr Volume: 1.1

  ** Phase 1 - Check Block and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Count
  ** Phase 5 - Check Free List
  xxx files xxxx blocks xxxxx free

The machine appears to be usable.

       Welcome!
This machine has to be set by you.  When you see the "login" message type
                                  setup
followed by the RETURN key.  This will start a procedure that leads you through
those things that should be done the "first time" the machine is used.

The system is ready.

Console Login:
```

Figure 4-2. Initial Terminal Display

6. If something appears wrong, contact your service representative immediately.

7. Initial power up is complete. Prepare to do initial software setup.

Initial Software Setup

1. Read the welcome message on your terminal.

2. Enter:

setup<CR>

Response:

```
Console Login: setup<CR>

                              Setup Procedure
Setup establishes this machine as yours and can make sure that no one else
uses it without your permission.  I am assuming that you have read about
"initial setup" in the GETTING STARTED chapter of the Owner/Operator Manual.
        The first step is to set the timezone, date, and time of the system
clock.

Current time and timezone is: hour:minutes timezone(symbol)
Change the time zone? [y, n, q, ?]
```

Figure 4-3. Initial Response to Setup Command

3. Set time zone, date, and system time by reading questions and inputting answers on the console terminal. See the example in Figure 4-4 that resets the machine from 2:30 p.m. (Central Daylight Time) on Friday, June 22, 1984 to 12:27 p.m., Monday, July 2, 1984 in Chicago. And while doing setup, remember this key:

y = yes
n = no
q = quit (any time)
? = help or explain

```
Current time and timezone is: 14:30 CDT
Change the time zone? [y, n, q, ?] y<CR>

        Available time zones are...
        1.  Greenwich (GMT)
        2.  Atlantic  (AST & ADT)
        3.  Eastern   (EST & EDT)
        4.  Central   (CST & CDT)
        5.  Mountain  (MST & MDT)
        6.  Pacific   (PST & PDT)
        7.  Yukon     (YST & YDT)
        8.  Alaska    (AST & ADT)
        9.  Bering    (BST & BDT)
        10. Hawaii    (HST & HDT)
Enter zone number: 4<CR>

Does your timezone use Daylight Savings Time during the year?  [y, n, q, ?] y<CR>
Time zone now changed.  Next time you turn on the machine
ALL times will be reported in the new time zone.  Most will be right
next time you log in.
Current date and time: Fri. 06/22/84 14:30
Change the date and time? [y, n, q, ?] y<CR>
Month   default 06     (1-12): 7<CR>
Day     default 22     (1-31): 2<CR>
Year    default 84     (70-99): <CR>
Hour    default 14     (0-23): 12<CR>
Minute  default 30     (0-59): 27<CR>
Date and time will be set to:  07/02/84 12:27.  OK? [y, n, q, ?] y<CR>
Mon Jul  2 12:27:01 CDT 1984
The date and time are now changed.
```

Figure 4-4. Setting System Clock - Example

4. Next, setup will ask you to start entering login information beginning with your own. See example in Figure 4-5 to enter a login for yourself. If you make errors, setup will allow you to

edit them afterward.

```
        The next step is to set up logins.
The first one you make should be for yourself.


Anytime you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Owner/Operator Manual.

Enter user's full name:  John R. Doe<CR>
Enter user's login ID:   jrd<CR>
Enter user ID number. (If you don't, I'll pick one): <CR>
Enter group ID number or group name.
(If you don't, I'll pick one): sales<CR>
Enter user's login (home) directory name.
(If you don't I'll use '/usr/sales'): <CR>

This is the information for the new login:
        User's name:    John R. Doe
        login ID:       jrd
        user ID:        100
        group ID:       sales
        home directory: /usr/sales
Do you want to install, edit, or skip this entry [i, e, s, q] i<CR>
Login installed.
Do you want to give the user a password? [y, n] y<CR>
New Password: <password><CR>
Re-enter new password: <password><CR>
Do you want to add another login? [y, n, q] n<CR>

NOTE: Your password is very important.  It is the way that the computer
verifies that someone who attempts to login as you is indeed you.  If you
give it away to someone, they can do anything you can do and the machine does
not know the difference.  Please read the chapter on SECURITY in the
Owner/Operator Manual.
```

Figure 4-5. Assigning Login - Example

5. Setup now asks you to assign passwords to certain administrative logins and commands. Unless you are an experienced user, do not do these at this time. So enter **n**<CR>.

6. Setup then asks you to assign passwords to system logins. If you want to assign the root password for yourself, enter a **y**<CR> for yes, and follow instructions. See Figure 4-6 for an example.

```
        The next step is to establish passwords for the administrative logins
and commands.

Do you want to give administrative logins passwords? [y, n, q, ?] n<CR>

Do you want to give system logins passwords? [y, n, q; ?] y<CR>

NOTE: Passwords are optional but always recommended for security reasons.
An example password is 112233 (must be at least six characters).

Do you want to give the 'root' login a password? [y, n, q, ?] y<CR>
New password: <password><CR>
Re-enter new password: <passsword><CR>
Do you want to give the 'daemon' login a password? [y, n, q, ?] q<CR>
```

Figure 4-6. Assigning root Password - Example

7. Setup now asks you if you want to change the present name of your machine. All 3B2 Computers are named " unix" by the factory.

   - If you are not part of a network, type in **n**<CR>. The `Console Login:` prompt will then appear.
   - If you will be part of a network, type in **y**<CR> and follow instructions to rename your machine just like Figure 4-7 shows.

```
        The next step is to set the node name of this machine.  This is the
name by which other machines know this one.

This machine is currently called "unix".
Do you want to change it? [y, n, q, ?] y<CR>
What name do you want to give it? [q] 3b2wra<CR>

NOTE: An example node name stands for the "A" 3B2
Computer at Reynolda Road in Winston-Salem.

This completes your initial set up of the machine.
You may now log into your login.


Console Login:
```

Figure 4-7. Renaming 3B2 Computer - Example

Logging On and Off

Try using your 3B2 Computer. After setup finishes, the term `Console Login:` appears. This is the normal login prompt on the console port.

Log in as root or the other login you assigned yourself. First, enter your login name followed by a carriage return. After `Password:` appears, enter the associated password followed by a carriage return. Remember, passwords never appear on your screen when typed in. If you log in as root, you get a # prompt; if you logged in as a user, you get a $ prompt. Either way, enter these commands one at a time and see the responses you get:

```
date
echo hello
who
pwd
uname
sleep 5
expr 3 + 2
```

To log off, hold the CONTROL key down while momentarily depressing the d key. (Do not use the SHIFT key to make a capital D.) The `Console Login:` login message soon reappears.

Turning Off

There are two ways to turn off your 3B2 Computer. You can use the power switch or a software command, but either way is under software control. This manual shows you the most direct way using the power switch. The software method that turns your 3B2 Computer off uses the " powerdown" and " shutdown" commands. Later in this chapter, " Simple Administration" discusses the powerdown command. Your *3B2 Computer System Administration Utilities Guide* discusses the shutdown command.

When you depress the power switch to STANDBY and release, power is not removed until all the current software processes are completed. Removing power in this manner is referred to as a

"soft" power down.

Warning: Never pull the power plug or externally remove power until the 3B2 Computer has completed its power down procedure.

Several seconds after you depress the power switch to STANDBY, the POWER light starts flashing. It takes between 60 to 90 seconds from the time you depress the power switch until power is finally removed. In the meantime, a broadcast message similar to the one in Figure 4-8 appears gradually on the console terminal and on any other logged on terminal.

```
Shutdown started.    Mon Jul  2 12:49:31 CDT 1984

Broadcast Message from root (console) Mon Jul 2 12:49:34...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.


INIT: New run level: 0

NOTE: If you are not familiar with run levels,
see your 3B2 Computer System Administration
Utilities Guide.

The system is down.
```

Figure 4-8. Shutdown Broadcast Message - Example

MORE SOFTWARE SETUP

Making a Floppy Key and Changing Firmware Password

For your protection, you now need to do two important things. One is to make a floppy key, and the other is to change the default firmware password that came with your 3B2 Computer. These take only a few minutes by following the examples in Figure 4-9 and 4-10.

```
Console Login: root<CR>
Password: <password><CR>
# shutdown -y -g0 -i5<CR>

Shutdown started.    Mon Jul  2 12:49:31 CDT 1984

Broadcast Message from root (console) Mon Jul 2 12:49:34...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.


INIT: New run level: 0

The system is down.

SELF-CHECK

FIRMWARE MODE<mcp><CR>


Enter name of program to execute [ ]: newkey<CR>

Creating a floppy key to enable clearing of saved NVRAM information

Insert a formatted floppy, then type 'go' (q to quit): go<CR>

NOTE: Use the blank, unformatted floppy disk labeled
" Floppy Key" that came with your 3B2 Computer. Make
sure it is write enabled. (Refer to Appendix B for
information on using floppy disks if you are not
familiar with using them.)

Creation of floppy key complete

Remove the floppy key and store in a safe place. If
you ever forget the firmware password you are about
to change, you can use your floppy key to enter
the firmware mode using the old 'mcp' default password.
```

Figure 4-9. Making a Floppy Key - Example

```
Enter name of program to execute [ ]: passwd<CR>

enter old password: <old password><CR>
enter new password: <new password><CR>
confirmation: <new password><CR>

Enter name of program to execute [ ]: unix<CR>
        Possible load devices are:

Option Number     Slot      Name
----------------------------------------
       0          0      FD5
       1          0      HD30
       2          1
       3          2

Enter Load Device Option Number [1 (HD30)]: 1<CR>
Device *VOID* (board code 1) not configured
Device *VOID* (board code 2) not configured

UNIX System V Release 2.0 3B2 Version 1
unix
Copyright (c) 1984 AT&T Technologies, Inc.
All Rights Reserved

NOTE: If you changed the node name of your machine, it
will appear instead of 'unix.'

       fsstat: cannot open cld0s0
       The root file system (cld0s0) is being checked automatically.
Can't open cld0s0

              Time of Day Clock needs Restoring:
              Change using "sysadm datetime" utility
The system is coming up.  Please wait.

This machine has not been used as a customer machine yet.  The messages that
follow are from checking the built-in file systems for damage that might have
occurred during shipment.  As long as you do not see either of the messages
                                  BOOT UNIX
or                          FILE SYSTEM WAS MODIFIED
all is well.  If either message does come out, call your service representative.
However, the machine is still usable unless I tell you otherwise.
I will now start checking file systems.

  /dev/dsk/cld0s2
  File System: usr Volume: 1.1

  ** Phase 1 - Check Block and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Count
  ** Phase 5 - Check Free List
  xxx files xxxx blocks xxxxx free

The machine appears to be usable.

       Welcome!
This machine has to be set by you.  When you see the "login" message type
                               setup
followed by the RETURN key.  This will start a procedure that leads you through
those things that should be done the "first time" the machine is used.

The system is ready.

Console Login:
```

Figure 4-10. Changing Firmware Password - Example

Other Tasks

Earlier, you finished one aspect of system setup using the simple administration program. This program gave you many different prompts to help enter needed information.

Very soon, you need to do several other administrative tasks listed below. Simple administration setup can help you do many of these. Later in this chapter, the rest of setup will be explained in " SIMPLE ADMINISTRATION." You may want to refer to your *3B2 Computer System Administration Utilities Guide* for additional information on administrative tasks.

1. Assign passwords to administrative logins — Certain commands allow you to change the way your 3B2 Computer works.

setup	powerdown	sysadm
checkfsys	makefsys	mountfsys

2. Assign passwords to system logins — Certain commands are reserved for more knowledgeable users.

root	daemon	bin
sys	adm	uucp
nuucp	rje	trouble

3. Format blank floppies — This is necessary before reading onto any blank floppy.

4. Add other users — This assigns other users their administrative and login data.

5. Install provided utilities following the instructions in your *Software Information Bulletins.*

Directory & File Management	Editing
Essential	Help
Security Administration	System Administration
Terminal Information	User Environment

Note: Security Administration is available in U.S. markets only.

6. Do system backup — A backup procedure stores hard disk memory on floppy disks. Then if data corruption occurs, you can restore your system using your backup floppy disks.

7. Set user options — This pertains to such things as personalizing your .profile file, defining TERM and BACKSPACE, changing your prompt sign, setting up special files, defining paths, etc.

8. Install optional features (see feature documents).

SECURITY

The information you store in your 3B2 Computer is a valuable resource, and you should be very concerned about protecting it. The UNIX Operating System in the 3B2 Computer provides some of the most sophisticated security features available on a small business-type computer. This chapter describes these security features and includes additional measures that you can take to safeguard your information.

Access Permission

One inherent feature of the UNIX Operating System is defining who has permission to access data. If you are sharing your 3B2 Computer with other people, you may have information that you want to keep private. On the other hand, you may have general information that you want to share with other people using the computer. The UNIX Operating System allows you to satisfy both of these needs.

For the purpose of defining access permission, the UNIX Operating System recognizes three different users of stored data. These users are: the owner of the data, the group the owner belongs to, and all the other people who are using the system. Whenever you create a file or a directory, the system will automatically identify which users will be allowed permission to read the file, write the file, or execute the file. Although the system does this automatically when a file or directory is created, you are the one who originally tells the system what access to allow. As the owner of a file or directory, you can change the access permission after a file or directory is created.

For details of how to set and change access permissions, see the *UNIX System V User Guide*. The important thing to remember is that you can share information while protecting it from tamperings or erasure.

Data Encryption

If you have truly sensitive data that requires greater protection than that afforded by access permission, you can encrypt the data. Encrypting data scrambles it so that only the person having the "key" can unscramble and read the data. Refer to the *3B2 Computer Security Administration Utilities Guide* for procedures on data encryption.

> ***Note:*** The Security Administration Utilities is available only in the United States.

Passwords

Another technique used to prevent unauthorized access to the system or to certain areas of the system is the use of passwords. In the 3B2 Computer, passwords can be assigned to user logins, certain Simple Administration subcommands, and administrative logins. Access to the firmware mode is also protected by a password.

Selecting Passwords

Passwords are stored in an encrypted form and are reasonably secure, if you don't use passwords that are easy to guess. Don't use obvious names or strings of numbers such as your name, your spouse's name, children's names, social security number, license plate number, etc. The more unusual it is, the more effective it will be.

A password can consist of any random mixture of numbers, special characters, or alpha characters (uppercase or lowercase). It can be as short as four characters if you use a mixture of uppercase and lowercase letters, numbers, and special characters. If only lowercase letters are used, then the password must be at least six characters long. It is recommended that you use 6 to 8 characters for a password. You can use more than 8 characters, but only the first eight are recognized by the system.

Are Passwords for You?

It's obvious that there are advantages to having passwords. However, if you are a single user, working in a fairly secure area, and have no worries about someone being able to gain access to your computer, passwords may not be for you. After all, if you assign passwords, you will have to remember them. And every time you log in, you will have to type a password. If security is not a factor, this can become very bothersome. You will have to decide whether the added security is worth the extra effort.

Other related security measures that you can do include passwording system logins, blocking system logins, and changing the firmware password. The syspasswd subcommand, found in the Simple Administration section of this chapter, assigns passwords to system logins. The procedures for blocking unused system logins are found in the *3B2 Computer System Administration Utilities Guide*.

Floppy Key

It is important for you to keep your floppy key in a safe place. The floppy key is the only conventional means of entering the firmware mode if you forget the firmware password. The intended purpose of the floppy key is to serve as a backup to the firmware password. However, anyone who knows the password or has access to the floppy key can access your computer. Since all 3B2 Computers are shipped with identical firmware passwords, you must make a floppy key and change your password as soon as possible. The floppy key is made first so that no matter what you change the firmware password to, the key can reset the password to the default setting (mcp). In addition to the procedures given earlier in this chapter, the floppy key can be made using the Simple Administration floppykey subcommand.

Helpful Hints

Some additional steps that you can take to ensure the security of your information are:

1. Make backup copies of your files on floppy disks or magnetic tape cassettes on a periodic basis. Store these floppies in a safe place. That way if all of your files are destroyed, all is not lost.

2. Never leave your computer terminal logged on and unattended.

3. Locate your computer in an area that can be secured during those times when you are not using it.

4. If you are using your computer in a business environment, restrict the number of people who have access to the computer.

5. Don't write your password(s) down. If you're going to do that, you might as well not use passwords.

6. In a business environment you can periodically change passwords as a standard practice. Users can be forced to periodically change passwords through password aging. Refer to the *3B2 Computer System Administration Utilities Guide* for procedures on password aging. In addition you should probably change passwords whenever users transfer or leave the company.

7. If you are transmitting information using telephone lines, you can encrypt the data.

The security measures you take will depend a lot on how and where you are using the computer.

- Are you using it in a large office environment or a small office?
- How many people have ready access to your system?
- Are you the only user?
- How sensitive or valuable is the information you are storing?
- Are you concerned about someone carrying off your computer?

The way you answer these questions will dictate the measures you want to take to ensure the safeguarding of your data.

SIMPLE ADMINISTRATION

As an owner of a 3B2 Computer there will be some administrative tasks that you, or someone you designate, will have to perform on the computer. These tasks include adding or removing users, adding or removing software utilities and applications, or copying information from hard disk to floppy disks.

Traditionally, UNIX Systems have required very knowledgeable persons who are given special privileges to do these administrative tasks. This person is commonly referred to as a super-user. The 3B2 Computer, however, provides a set of special procedures to allow a normal user, with little experience, to do the job of system administration. This set of procedures is referred to as Simple Administration.

Simple Administration consists of a special set of interactive commands. When a Simple Administration command is entered, the 3B2 Computer displays a sequence of menus and questions. As you make your response to the menus and questions, the system performs the administration function.

Menus

The Simple Administration procedures can be accessed directly or via menus. Menus are one of the techniques used to simplify the performance of tasks on a computer. A menu is a listing of options or routines from which you make a selection. Usually the selection is made by entering a number or a letter. Entering a number or letter may take you directly to the procedure that you want to run or it may give you another list of options to choose from. You may have to go through several menus in this manner but eventually you will get to the procedure that you want to run.

Using menus eliminates the need to have a great deal of knowledge about many different commands. All you have to know is what you want to do.

Menu Descriptions

The top level menu for Simple Administration is called System Administration. It is accessed by entering the command **sysadm**. The System Administration Menu identifies a number of other menus:

1 diagnostics	system diagnostics menu
2 diskmgmt	disk management menu
3 filemgmt	file management menu
4 machinemgmt	machine management menu
5 packagemgmt	package management
6 softwaremgmt	software management menu
7 syssetup	system setup menu
8 ttymgmt	tty management menu
9 usermgmt	user management menu

The menu you select depends on the task you want to perform. Within Simple Administration (under the **sysadm** command), tasks are performed through a subset of commands called subcommands. Each menu contains a set of subcommands to help you manage a portion of the computer. A brief summary of each menu is given below. On the pages that follow, the individual subcommands of each menu are described.

The **system diagnostics menu** contains subcommands that enable you to get a report on built-in disk errors and provides advice on how to repair these errors.

> ***Warning: The repair of disk errors should only be performed by qualified service personnel.***

The **disk management menu** contains subcommands for doing things such as formatting and copying floppy disks, and using floppy disks as mountable file systems. Within this menu, you can also partition, and construct file systems on an additional hard disk in your system.

The **file management menu** contains subcommands to allow you to copy data from hard disk to floppy disks and also from floppy disks to the hard disk.

The **machine management menu** covers tasks such as changing operating states, turning off the computer, and making a floppy key.

The items that appear in the **package management menu** are used to manage software and hardware that you add to your 3B2 Computer. Additions are made to this menu when an optional utilities or a hardware option supported by Simple Administration is added to the 3B2 Computer. Not all utilities or options are supported by Simple Administration.

The **software management menu** contains subcommands that allow you to install new software, remove software, and run software directly from a floppy disk.

The **system setup menu** contains subcommands that tell the computer what its environment looks like; for example, what time zone it's in, what peripheral devices are attached to it, etc.

The **tty management menu** allows you to change the characteristics of a port-connected device (terminal, printer, or modem).

The **user management menu** helps you to administer the users of your computer. In this menu, you can add and delete users, add and delete user groups, and modify a user group or a user's login.

To access one of the menus, all you have to do is enter the number of the menu, the name of the menu, or the initial part of the name, followed by a carriage return. A subcommand is accessed in the same manner. Selecting a subcommand, enters you into an interactive routine that leads you through the steps involved to do the procedure.

Figure 4-11 depicts the structure of the Simple Administration menus and identifies the subcommands that are contained in each menu. In addition, this figure identifies those subcommands that also exist outside of Simple Administration as shell commands or logins. To control access to certain administrative tasks, these commands or logins can be optionally password protected. Passwords can be assigned by using the admpasswd subcommand located in the System Setup menu.

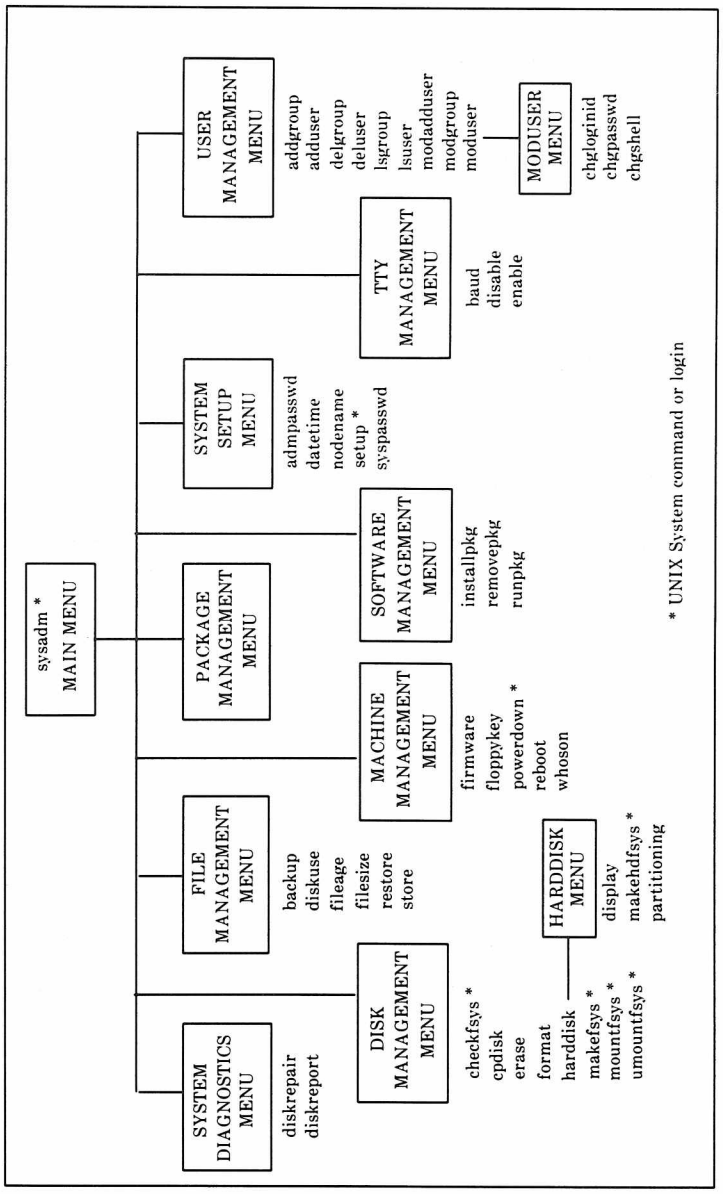


Figure 4-11. Simple Administration Menu Structure

Subcommand Descriptions

This section describes the subcommands that are included in Simple Administration. The subcommands are grouped according to the menus on which they are found.

System Diagnostic Menu Subcommands

Warning: The repair of disk errors should only be performed by qualified service personnel.

The subcommands that are accessible from the system diagnostic menu provide the capability to look for and sometimes repair problems in the computer. Those subcommands that attempt to do repair are to be used only by service personnel. The system diagnostic subcommands are:

diskrepair This subcommand provides advice on how to attempt repairs on built-in disk errors. The advice includes how to bring the system level down, what repair program to use, and how to restore the system.

diskreport This subcommand provides a report on built-in disk errors. You are given the choice of either summary or full reports. The summary report provides enough information to determine if repair should be attempted. The full report provides detailed information for the troubleshooting expert.

Disk Management Menu Subcommands

The subcommands that are accessible from the disk management menu provide functions for using floppy disks and for developing an additional hard disk. For floppy disks, these functions include the ability to format, copy, and use the disks as mountable file systems. To develop an additional hard disk, you can partition and create file systems on the disk. The subcommands are described below:

checkfsys The checkfsys subcommand checks a file system on a floppy disk for errors. If there are errors, checkfsys attempts to repair them.

cpdisk This subcommand copies the contents of a floppy disk into the machine and then allows you to make copies of it. These copies are identical to the original in every way. The copies are made by first reading the original floppy disk entirely into the machine and then writing it out onto duplicate disks. The procedure will fail if there is not enough space in the root file system to hold the original floppy disk data.

erase This procedure erases a floppy disk by overwriting it with null bytes. You can erase individual files or all the files on the floppy disk. The main purpose is to remove data that you don't want anyone to ever see. Be careful when you start erasing files because the process is not reversible.

format Before you can write programs and data on a floppy disk, certain things need to be done to the disk before it can store information. The process is called formatting. The format subcommand is used to prepare (format) floppy disks and get them ready to use.

harddisk

The subcommands in this menu provide functions for using an additional hard disk. You can partition the hard disk with default partitioning, create hard disk file systems, and display the current disk partitioning.

display: The display subcommand allows you to display the hard disk partitioning. This will inform you of current disk partitioning information.

makehdfsys:
If you have an additional hard disk linked to your system, the makehdfsys subcommand can be used to construct file systems on it. The file systems are constructed according to user responses and information obtained from the hard disk. Note that you must partition the hard disk before constructing the file systems. The procedures are repeated for the next eligible partitions until the disk is completed. The admpasswd subcommand (under System Setup) can be used to password makehdfsys.

partitioning:
The partitioning subcommand configures an additional hard disk. By using this subcommand, you can partition the hard disk according to the default partitioning.

makefsys

This subcommand creates a new file system on a floppy disk which can then store data you do not wish to keep on the hard disk. When " mounted" , the file system has all the properties of a file kept on the hard disk, except that it is smaller.

mountfsys The mountfsys subcommand mounts a file system, found on a floppy disk, making it available to the user. The file system is unmounted with the umountfsys subcommand.

THE FLOPPY DISK MUST NOT BE REMOVED WHILE THE FILE SYSTEM IS STILL MOUNTED.

umountfsys This subcommand unmounts a file system that is on floppy disk so that you can remove the floppy disk.

THE FLOPPY DISK MUST NOT BE REMOVED UNTIL THE FILE SYSTEM IS UNMOUNTED.

File Management Menu Subcommands

The subcommands in this menu allow you to protect files on the hard disk by copying them onto floppy disks. The protected files can then be restored by copying them back to the hard disk. Subcommands are also provided to determine which files might best be kept on floppy disks based on their age or size.

backup The backup subcommand saves copies of files from the hard disk file systems to floppy disks. There are two kinds of backups: COMPLETE (copies all files; useful in case of serious file system damage) and INCREMENTAL (copies files changed since the last backup). The normal usage is to do a complete backup of each file system and then periodically do incremental backups. It is recommended that you keep 2 cycles (one set of complete backups and several incrementals to each cycle). Files backed up with " backup" are restored using " restore" .

diskuse The diskuse subcommand lets you know what percentage of the hard disk is currently occupied by files. It outputs a list organized by file system names.

fileage List files older than a particular date. The fileage subcommand prints the names of all files older than the date you specify. If you don't enter a date, all files older than 90 days will be listed. If you don't specify the directory to look in, your login directory will be used.

filesize List the largest files in a particular directory. The filesize subcommand prints the names of the largest files in a specific directory. If you don't enter a directory name, your login directory will be used. If you don't specify how many large files to list, 10 files will be listed.

restore Restore files from " backup" & " store" media to built-in disk. The restore subcommand copies files from floppy disks, that were made using " backup" and " store," back onto the hard disk. You can restore individual files, directories of files, or the entire contents of a disk or tape. You can restore from both " incremental" and " complete" media. You can also list the names of files stored on the disk or tape.

store Copies files and directories from the hard disk to floppy disks. Typically, these would be files that you want to archive or restrict access to. You can store single files and directories of files. Use the restore subcommand to put stored files back on the hard disk and to list the files stored.

Machine Management Menu Subcommands

Machine management functions are tools used to operate the machine, for example, turn it off, reboot, or go to the firmware monitor.

firmware Stop all running programs then enter firmware mode. This procedure will stop all running programs, close any open files, write out information to disk (such as directory information), then enter the firmware mode. In the firmware mode, you can perform machine diagnostics and other special functions not available through standard UNIX System commands.

floppykey Create a floppy key removable disk. The floppy key removable disk allows you to enter the firmware mode if you have previously changed the firmware password and forget what it is. Thus, the floppy key is just that—the key to your system—and should be protected as such.

powerdown Stop all running programs then turn off your machine. The powerdown subcommand will stop all running programs, close any open files, write out information to disk (such as directory information), and then turn the machine power off.

reboot Stop all running programs then reboot the machine. The reboot subcommand will stop all running programs, close any open files, write out information to disk (such as directory information), and then reboot the machine. This can be used to get out of some types of system trouble, such as when a process cannot be killed.

whoson Prints a list of users who are currently logged onto the system. The login ID, terminal device number, and sign-on time of the users are printed.

Package Management Subcommands

Subcommands from the package management menu help you in using an optional utilities or a hardware option. This menu will be empty until you install a utilities or an option that is supported by Simple Administration. Once you have installed a supported utilities or option, a corresponding entry will appear in the package management menu. The entry (a menu) contains the subcommands or lists the files you will use for the installed utilities or option. The following entry would appear under the package management menu when you install the Basic Networking Utilities:

```
1 uucpmgmt        basic networking utilities menu
```

Note that not all of the utilities or options are supported by Simple Administration. The respective guide or manual indicates whether a utilities or option is supported. If supported, the corresponding subcommands or files are described in the guide or manual.

Software Management Menu Subcommands

The subcommands found in this menu permit you to install new software, remove software, and run software programs directly from the floppy disks they are delivered on. The " remove" and " run" capabilities are dependent on the particular software packages being run. See the instructions delivered with each package.

installpkg This subcommand copies software packages from floppy disks onto the hard disk. If necessary installpkg performs additional tasks to enable you to run the software.

removepkg This subcommand is used to remove software packages from the hard disk that were installed using the installpkg subcommand. When you execute this subcommand, it shows you a list of the currently installed optional software packages. After you select the packages you want to remove, " removepkg" performs whatever actions are necessary to remove those software packages. The floppy disk used to install the software package is needed to remove it.

runpkg Allows you to run software from a floppy disk without installing it on the hard disk. The runpkg subcommand takes a file off the floppy and executes it. This subcommand is useful if you do not use the software often, or if you do not have enough room on the hard disk to load the software package.

Note: Not all software packages have the ability to be run this way. See the instructions which come with the software package to find out if programs can be run directly from the floppy disk.

System Setup Menu Subcommands

System Setup routines allow you to tell the computer what its environment looks like: what the date, time, and time zone is, what administration and system capabilities are to be passworded, what the machine's name is, etc. The first-time setup sequence is also here.

admpasswd This subcommand lets you assign or make changes to passwords for administrative commands and logins such as setup and sysadm.

datetime

Enables you to have the computer report all times in your local time zone. Datetime tells the computer the date, time, time zone and whether you observe Daylight Savings Time (DST). This subcommand is normally run once when the machine is first set up. The computer has to be turned off and turned back on again to guarantee that ALL times are being reported correctly.

A feature of datetime is to make automatic time changes for Daylight Savings Time. If you observe DST, the computer will automatically start to observe it in the spring and return to Standard Time in the fall.

nodename

This subcommand allows you to change the node name of your 3B2 Computer. The node name is used by various communications networks to identify your computer. Unless you are familiar with relating node names to a network, refer to the *3B2 Computer System Administration Utilities Guide* for further information.

setup

This subcommand is used to set up your computer the first time you use it. The setup subcommand allows you to define the first login, add other logins, assign passwords to logins, and to set the timezone for your location.

syspasswd

Assign system passwords. The syspasswd subcommand lets you set system passwords normally reserved for the very knowledgeable user. For this reason, this procedure may assign those passwords, but may not change or clear them. Once set, they may only be changed by the specific login or the root login. Therefore, set them with care!

TTY Management Menu Subcommands

> ***Note:*** Before attempting to use the subcommands of TTY management, you should be familiar with the getty command and the gettydefs file. Refer to the *3B2 Computer System Administration Utilities Guide* for information on the getty command.

The subcommands of the TTY management menu allow you to change the operating conditions of the ports or tty lines. In most cases, you will be making these changes for a terminal. With these subcommands, you can change the data transmission (baud) rate and the operation state (status) of a tty line.

baud This subcommand allows you to change the baud rate of a tty line. The subcommand presents a list of changeable tty lines and a list of baud rates to choose from. When the change is made, the conditions of the tty line before and after the change are shown. Changing baud rates also causes a getty to be enabled (respawn) for the tty line.

disable This subcommand allows you to disable (turn off) any changeable tty line. In this status, the computer disables getty and will not respond with a login prompt. This effectively blocks from use a terminal connected to this port. However, a printer can operate under the "off" status.

enable This subcommand allows you to enable (respawn) any changeable tty line. When enabled, the getty for a tty line is respawn and logins are then permitted. A terminal will operate under the "respawn" status.

User Management Menu Subcommands

The subcommands and submenu of the user management menu allow you to add, modify, and delete the list of users that have access to your machine. You can also place them in separate groups so they can share access to files within the group but protect themselves from other groups.

addgroup This subcommand adds a new group name or ID to the computer. Group names and IDs are used to identify groups of users who desire common access to a set of files and directories.

adduser Enables you to add other users to the 3B2 Computer. Adding a user consists of assigning a login ID, user ID, group ID, login path name, and a password. You can enter more than one user at a time. Once this procedure is finished, the new login ID is available.

delgroup The delgroup subcommand allows you to remove groups from the computer. The deleted group is no longer identified by name. However, files may still be identified with the group ID number.

deluser Allows you to remove users from the computer. All the information pertaining to a person, such as their login ID and all the data they have stored on hard disk, is removed. After this subcommand has been executed, the person who was removed will no longer have access to the computer.

lsgroup Lists all the groups that have been entered into the computer using the addgroup subcommand. This list is updated automatically by " addgroup" and " delgroup" .

lsuser Lists all the users that have been entered into the computer using the " adduser" subcommand. This list is updated automatically by " adduser" and " deluser"

modadduser The modadduser subcommand allows you to change some of the defaults used when adduser creates a new login. Changing the defaults does not affect any existing logins, only ones added after modifying adduser.

modgroup The purpose of this subcommand is to allow you to change all the information about a group that you enter when you run " addgroup" to set up new groups.

moduser This is a menu of subcommands to modify the various aspects of a user's login.

chgloginid:

This procedure allows you to change a user's login ID. You cannot change the login IDs of the administrative and system logins.

chgpasswd:

This subcommand allows you to remove or change a user's password. You cannot change the passwords of the administrative and system logins. To do that, see the system setup menu (admpasswd subcommand).

chgshell:

This subcommand allows you to change the command run when a user logs in. You cannot change the login shell of the administrative and system logins.

Simple Administration Example

The following example shows how you would enter Simple Administration, step through the menus, and add a user to your computer.

Let's say that you want to allow Sam O. Smith to have access to your 3B2 Computer. Assuming you are already logged in, the first thing you would do is access the Simple Administration main menu as shown in Figure 4-12.

```
$sysadm<CR>
Password:<password><CR>     Note: sysadm may not have password protection.

                SYSTEM ADMINISTRATION

     1 diagnostics          system diagnostics menu
     2 diskmgmt             disk management menu
     3 filemgmt             file management menu
     4 machinemgmt          machine management menu
     5 packagemgmt          package management
     6 softwaremgmt         software management menu
     7 syssetup             system setup menu
     8 ttymgmt              tty management menu
     9 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT:
```

Figure 4-12. Accessing the Main Menu

If you know that the routine for adding a user is part of user services, enter **9**<CR>. However, if you are not sure which menu you need to select to add a user, you can ask for help by typing in a **1?**<CR>, **2?**<CR>, **3?**<CR>, or **4?**<CR>. Every menu that is displayed is followed by:

```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT:
```

This is the prompt that you get following each menu. Since you are not communicating with the shell program, you do not get the shell prompt, that is, **$** (or # if you are logged in as root). You always have the option to ask for help (**?**<CR> or <number>**?**<CR>), to go back to the previous menu (**^**<CR>), or exit the menu system (**q**<CR>). A carriage return by itself will display the current menu again. If you enter a **q**<CR> to quit, you will get a **$** (or #) prompt which means the next command you enter should be a shell command. The following shows what happens when you ask for help:

```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 9?<CR>

      User Management helps you define the users and
      groups that have access to your machine.

      Press the RETURN key to see the sysadm menu [?, q]:
```

Every time you ask for help, you need to depress the RETURN key to get the menu back. Since the task is related to User Management, you would enter **9**<CR> as shown in Figure 4-13.

```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 9<CR>

                          USER MANAGEMENT

     1 addgroup        add a group to the system
     2 adduser         add a user to the system
     3 delgroup        delete a group from the system
     4 deluser         delete a user from the system
     5 lsgroup         list groups in the system
     6 lsuser          list users in the system
     7 modadduser      modify defaults used by adduser
     8 modgroup        make changes to a group on the system
     9 moduser         menu of commands to modify a user's login

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT:
```

Figure 4-13. Accessing the User Management Menu

Looking at the tasks that are supported by USER MANAGEMENT, you notice that `adduser` is the subcommand you need to access in order to add a user to the system.

Before going on, a note about one of the instructions. When adding a user to your system, you have the opportunity to give the user a password. If you decide to assign a password, be sure that you use at least six characters. If you have not used at least six characters, the system responds with:

Password is too short - must be at least 6 digits

The system will give you up to three chances to enter a password that meets the requirement. If you take more than three, the system will skip passwording and continue with adduser.

An example of the information you would enter and the system responses for adduser are shown in Figure 4-14.

```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT: 2<CR>

Any time you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Owner/Operator Manual.

Enter user's full name:Sam O. Smith<CR>
Enter user's login ID:sos<CR>
Enter user ID number. (If you don't, I'll pick one):200<CR>
Enter group ID number or group name.
(If you don't, I'll pick one):300<CR>
Enter user's login (home) directory name.
(If you don't I'll use '/user/sos'):<CR>

This is the information for the new login:
     User's name:      Sam O. Smith
     login ID:         sos
     user ID:          200
     group ID:         300
     home directory:   /usr/sos
Do you want to install, edit, or skip this entry? [i, e, s, q]? i<CR>
Login installed.
Do you want to give the user a password? [y, n]y<CR>
New password: <password>
Re-enter new password: <password>
Do you want to add another login? [y, n, q]n<CR>

Press the RETURN key to see the user management menu: <CR>

                        USER MANAGEMENT

     1 addgrp       add a group to the system
     2 adduser      add a user to the system
          .                 .
          .                 .
          .                 .
     9 moduser      menu of commands to modify a user's login

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT: q<CR>
$
```

Figure 4-14. Using the adduser Subcommand

You have now added a user and are once again communicating with the shell program.

Direct Access to Simple Administration Tasks

After you become familiar with the Simple Administration routines, you may find the use of menus becoming a little tedious. If you know which routine you want, there is a way to access the subcommands directly. The way to do it is to enter the following command line:

sysadm ''function name''<CR>

where **''function name''** is one of the Simple Administration subcommands.

Using the example of adding a user again, Figure 4-15 will show you how to access the adduser subcommand directly.

```
$ sysadm adduser<CR>
Password:<password><CR>     Note: sysadm may not have password protection.

Running command 'adduser' in menu USER MANAGEMENT

Any time you want to quit, type "q".
If you are not sure how to answer any
prompt, type "?" for help, or see the Owner/Operator
Manual.

Enter user's full name:

From this point on, the procedure is the same
as if you had entered it by way of the menus.
```

Figure 4-15. Using adduser Directly

INSTALLING AND REMOVING UTILITIES SOFTWARE

This section provides information concerning the installation and removal of 3B2 Computer Utilities software.

Disk Space Requirements

Part of the installation process verifies that the required free disk space is available in the root and /usr file systems. If sufficient disk space is not available, you will be notified by a displayed message. You will then need to remove one or more other optional utilities or user files to make space available to install the desired utilities. Procedures to remove utilities and user files are discussed later in this chapter.

Installing Utilities

Installation of software for any of the optional utilities is very simple. Instructions and error messages are displayed to guide you through the process. Information that you enter on the keyboard must be ended with a carriage return. This is shown in the following procedure by using <CR> at the end of the lines.

Prerequisites

Before you install any optional utilities, you should be logged in as root on the CONSOLE terminal. The pound symbol (#) is the system prompt when you are logged in as root. Refer to the "Software Setup" section of this chapter for additional information on logins. Also, make sure you review the Software Information Bulletin of the particular utilities you intend to install. The Bulletin may contain installing information that is peculiar to the utilities.

Procedure

The following commands are entered after you receive the system prompt. After entering each command, wait for the system prompt before entering the next command.

> ***Caution: Entering the shutdown command changes the operating mode to single user. In the single-user mode, only the CONSOLE terminal is functional. All other users are requested to log off before processes are killed. Operation in single-user mode for installing/removing utilities is recommended, but not required, to prevent interference with other users.***

To change the operating mode to single user (for installing utilities), enter the following:

```
# shutdown -y<CR>

Note: A series of shutdown messages appear that
are similiar to those shown in Figure 4-8.

# mount /dev/dsk/c1d0s2 /usr<CR>
```

The mount command line allows you to use Simple Administration subcommands while in the single-user mode.

To install a utilities, use the direct access method of Simple Administration as follows:

```
# sysadm installpkg<CR>
```

This executes the Simple Administration " installpkg" subcommand. After inserting the floppy disk and depressing carriage return

(<RETURN>) as instructed, the system responds with messages identifying the files that are being copied from the floppy to the hard disk. If a problem is encountered, the system will respond with messages indicating the source of the problem and the action to be taken. A completion message will be displayed when the utilities is installed. After receiving this message, remove and store the floppy disk safely with the rest of your disks.

The system then gives you the option to install another utilities. If you wish to exercise this option, insert the floppy of the next utilities you want to install. If no other utilities are to be installed at this time, type **q**<CR> to quit. Once **q**<CR> is typed, the installpkg mode is terminated and you receive the system prompt for root (#).

If you are in the single-user mode, the following command must be entered before returning the system to the normal operating (multi-user) condition:

```
# umount /dev/dsk/c1d0s2<CR>
```

The umount command will unmount the /usr file system leaving only the root file system mounted. This was the condition of the system just after you entered the single-user mode. To return to the normal operating condition, enter:

```
# init 2<CR>
```

You may want to notify other users that the commands associated with the installed utilities are available. Refer to the *3B2 Computer System Administration Utilities Guide* for information on modifying the "message-of-the-day" or sending news. You are no longer required to be logged in as root.

Removing Utilities

The **sysadm removepkg** subcommand creates free space on the hard disk by removing the utilities that you select. The **sysadm removepkg** subcommand will free up the number of disk blocks that were used at the time a utilities was installed. You may not recover all the disk space you had before a utilities was installed.

An alternative to the removal of a utilities is the removal of directories and files that you have created. Data that you want to keep can be copied to one or more floppy disks before removing (deleting) the data from hard disk. Refer to the *3B2 Computer System Administration Utilities Guide* for information on how to copy data from hard disk to floppy disk.

Prerequisites

Before you remove a utilities, you should be logged in as root on the CONSOLE terminal. The pound symbol (#) is the system prompt when you are logged in as root. Refer to the "Software Setup" section of this chapter for additional information on logins. Also, make sure you review the Software Information Bulletin of the particular utilities you intend to remove. The Bulletin may contain removal information that is peculiar to the utilities.

Procedure

The removal of utilities software is very simple. Instructions and error messages similar to those found in the installation procedure are displayed to guide you through the process.

The following commands are entered after you receive the system prompt. After entering each command, wait for the system prompt before entering the next command.

Caution: Entering the shutdown command changes the operating mode to single-user. In the single-user mode, only the CONSOLE terminal is functional. All other users are requested to log off before processes are killed. Operation in single-user mode for installing/removing utilities is recommended, but not required, to prevent interference with other users.

To change the operating mode to single user (for removing utilities), enter the following:

```
# shutdown -y<CR>

Note: A series of shutdown messages appear that
are similiar to those shown in Figure 4-8.

# mount /dev/dsk/c1d0s2 /usr<CR>
```

The mount command line allows you to use Simple Administration subcommands while in the single-user mode.

To remove a utilities, use the direct access method of Simple Administration as follows:

```
# sysadm removepkg<CR>
```

The system will respond with a list of installed utilities. The system will then prompt you to insert the floppy disk of the utilities you want to remove. If the utilities you want to remove consist of multiple floppy disks, insert the first disk of the set. After the disk has been inserted, depress carriage return (<RETURN>) as instructed. If a problem is encountered, the system will respond with messages indicating the source of the problem and the action to be taken. If no problems are encountered, the system will respond with messages identifying the files that are being removed from the hard disk. A completion message will be displayed when the utilities is removed. After receiving this message, remove and store the floppy disk safely with the rest of your disks.

The system then gives you the option to remove another utilities. If you wish to exercise this option, insert the floppy of the next utilities you want to remove. If no other utilities are to be removed at this time, type **q**<CR> to quit. Once **q**<CR> is typed, the removepkg mode is terminated, and you receive the system prompt for root (#).

If you are in the single-user mode, the following command must be entered before returning the system to the normal operating (multi-user) condition:

```
# umount /dev/dsk/c1d0s2<CR>
```

The umount command will unmount the /usr file system, leaving only the root file system mounted. This was the condition of the system just after entering the single-user mode. To return to the normal operating condition, enter:

```
# init 2<CR>
```

You may want to notify any other users that the commands associated with the removed utilities are no longer available. Refer to the *3B2 Computer System Administration Utilities Guide* for information on modifying the "message-of-the-day" or sending news. You are no longer required to be logged in as root.

Chapter 5

TROUBLE

PAGE

TROUBLESHOOTING 5-1
INTERFERENCE 5-3

Chapter 5

TROUBLE

TROUBLESHOOTING

In the event of trouble with your 3B2 Computer, refer to the Troubleshooting Chart in Figure 5-1 before calling your service representative.

PROBLEM	CAUSE	REMEDY
Error message	System problem	Refer to *System Administration Utilities Guide*.
Forgot password	—	Refer to *System Administration Utilities Guide*.
No power	1. No power from outlet. 2. Fuse blown in 3B2 Computer.	1. Check outlet and connections. 2. Call service representative.
Problems keeping date or time	Battery	Call service representative for replacement.
Interference with other electronic equipment	Placement or cabling of 3B2 Computer	See "INTERFERENCE", this chapter.
Cannot login	Permission mode in home directory	Root must change.
Cannot turn off	Console Terminal disconnected	Reconnect Console Terminal.

Figure 5-1. Troubleshooting Chart

INTERFERENCE

If your 3B2 Computer causes interference in nearby electronic equipment, try the following remedies:

- Relocate cables and/or antennas.
- Relocate your 3B2 Computer with respect to the equipment.
- Make sure your 3B2 Computer and the equipment interfered with are not plugged into the same outlet.

If these measures do not eliminate the interference, consult your service representative.

Chapter 6

GUIDE TO DOCUMENTS

PAGE

DOCUMENTATION OVERVIEW 6-1

STANDARD DOCUMENTS 6-3

Check and Assembly 6-3

Descriptions 6-4

ORDERING OPTIONAL DOCUMENTS 6-7

Chapter 6

GUIDE TO DOCUMENTS

This guide discusses 3B2 Computer documents in three parts:

1. Documentation overview
2. Standard documents
3. Ordering optional documents.

DOCUMENTATION OVERVIEW

The 3B2 Computer is a modular system. Documentation for your system is organized along these modules.

The primary module of the 3B2 Computer is the " basic system." The basic system consists of the standard 3B2 Computer hardware, the UNIX Operating System, and UNIX System utilities provided with the machine. This basic system is supported by various manuals, guides, and software information bulletins. Additional documents of the same type are provided with each optional add-on feature as explained below.

Hardware manuals tell you all about a subject - installing, testing, using, and troubleshooting. UNIX System reference guides contain command information for reference or general use. UNIX System utilities guides tell you how to use add-on software and are supported with a software information bulletin. A software information bulletin gives you the technical facts about the utilities software.

Language packages are program development software, such as compilers and debuggers, designed for specific languages — BASIC, C, FORTRAN, and PASCAL. Each language package has its own package of documents: a guide, handbook, or manual, and a software information bulletin.

Workbenches format documents, teach UNIX System operation, and help write better text. Each workbench — Documentors, Instructional, and WRITER'S — has its own document(s) and software information bulletin that tell you how to install and use them.

Add-on hardware features are basically hardware features. A few have their own software utilities. These features extend the capabilities of your system with such features as 3BNET, Expanded Input/Output Capability, and Random Access Memory. The manuals for add-on hardware features are individually bound in soft covers for placement in the *Options* binder.

Peripherals include input/output devices that are compatible with your 3B2 Computer. These devices are modems, terminals, and printers. Each supported peripheral is documented in a separate manual.

Depending on how you use your 3B2 Computer, you may need some *special technical documents*. These optional documents are available for hardware and software design reference.

STANDARD DOCUMENTS

Check and Assembly

First, check and assemble your documents as follows. Standard documents supplied with all 3B2 Computers include:

1. *3B2 Computer Owner/Operator Manual*
2. *UNIX System V User Guide*
3. *UNIX System V Release 2.0 User Reference Manual*
4. A *3B2 Computer Utilities Guide* and a *3B2 Computer Software Information Bulletin* for each of these provided utilities:

    - Directory and File Management
    - Editing
    - Essential

    > ***Note:*** Instead of a dedicated utilities guide, the most commonly used commands in the Essential Utilities are documented in your *UNIX System V User Guide* and *3B2 Computer System Administration Utilities Guide.*

    - Help
    - Security Administration (U.S. markets only)
    - System Administration
    - Terminal Information
    - User Environment.

5. Two empty *Utilities* binders

6. One empty *Options* binder.

Individual " updates" documents may also be included to supplement any of the above documents.

After you check your documents, remove any packaging and file them in the provided binders. There is a special tab in this *Owner/Operator Manual* to store your *3B2 Computer Software Information Bulletins*. The two empty binders titled *Utilities* are for your *3B2 Computer Utilities Guides* (soft cover). Because of the size of the *3B2 Computer System Administration Utilities Guide*, one *Utilities* binder is solely for it. File other utilities guides in the second *Utilities* binder. If you ordered your 3B2 Computer with optional UNIX System utilities, you may want to order another *Utilities* binder to file them.

You can file soft cover documents for your optional add-on hardware features in the empty binder labeled *Options*.

Descriptions

Your *Owner/Operator Manual* contains basic information about your 3B2 Computer. Reading this manual will help you to understand your computer system better and to avoid trouble later. Your *Owner/Operator Manual* provides you with enough information to bring up your 3B2 Computer for the first time and to perform necessary administrative and security related tasks.

If you receive an *Owner/Operator Updates document* with your 3B2 Computer, you MUST read it before setting up your system to ensure you have the latest information. Other updates documents should be consulted before using any associated 3B2 Computer features.

Your *UNIX System V User Guide* gives an overview of the UNIX Operating System and a tutorial introduction on how to:

- Access the system
- Set your terminal characteristics
- Use the Shell command language
- Edit
- Make best use of the file system.

If you are not familiar with the UNIX Operating System, the *UNIX System V User Guide* provides a good introduction.

All user commands available with the 3B2 Computer are supported by a user command reference page, often called a " manual page." At least one page, often more, describes the various aspects of each command. For example:

- A description of the command
- Command arguments and options
- Warnings about using the command
- Examples
- Diagnostic messages that you might receive while using the command.

This includes the essential commands loaded on hard disk, as well as the user commands included in the utilities provided with the 3B2 Computer.

The *User Reference Manual* is an alphabetical collection of UNIX System manual pages for each of the commands delivered with your 3B2 Computer — except System Administration utilities manual pages. These are found in your *3B2 Computer System Administration Utilities Guide*.

A *Utilities Guide* explains how to use each of the UNIX System utilities. UNIX System manual pages for the following utilities are also included in their *Utilities Guides*.

- Directory and File Management
- Editing
- Help
- Security Administration (U.S. markets only)
- Terminal Information
- User Environment

When filing these *Utilities Guides* in a *Utilities* binder, you can discard their manual pages. Do not discard the manual pages in your *3B2 Computer System Administration Utilities Guide*.

Each *Software Information Bulletin* gives you the following information.

- Description
- List of commands
- Disk space required
- Main memory required
- Supporting software
- Special installation procedures

ORDERING OPTIONAL DOCUMENTS

In addition to the standard documents just discussed, there are many other documents for 3B2 Computer optional features. Refer to the *Documentation Catalog* that came with your 3B2 Computer for ordering information. See your service representative for a current list of available documents if you cannot find one you are looking for.

Appendix A

CABLES AND CONNECTORS

ITEM	REQUIRED FOR
7′ Cable	Any serial, asynchronous terminal or printer
14′ Cable	Any serial, asynchronous terminal or printer
25′ Cable	Any serial, asynchronous terminal or printer
50′ Cable	Any serial, asynchronous terminal or printer
3′ Parallel Cable	LQP-40 or standard parallel printer
Coaxial Cable	3BNET Transceiver
Drop Cable	3BNET Feature Card
Male/plug terminal/printer connector	5410, 5420, and 5620 Dot-Mapped Display terminals
Male/plug modem connector	Automatic Dial Modem
Male/plug null modem connector	RS-232-C 25-pin terminal or serial printer connector
Female/receptacle terminal/printer connector	RS-232-C 25-pin terminal or serial printer connector
Female/receptacle modem connector	Automatic Dial Modem
Coaxial cable male connector	Coaxial Cable
Coaxial cable female connector	Coaxial Cable
Coaxial cable barrel connector	Coaxial Cable
Coaxial cable terminator	Coaxial Cable

Figure A-1. Cables and Connectors for 3B2 Computer Options

Appendix B

USING FLOPPY DISKS

DESCRIPTION OF A FLOPPY DISK

You should have received several floppy disks (Figure B-1) with your 3B2 Computer. These are 5.25-inch diameter Mylar disks coated with magnetic material to store data. Some of your floppies have the UNIX System core, and others have software utilities stored on them.

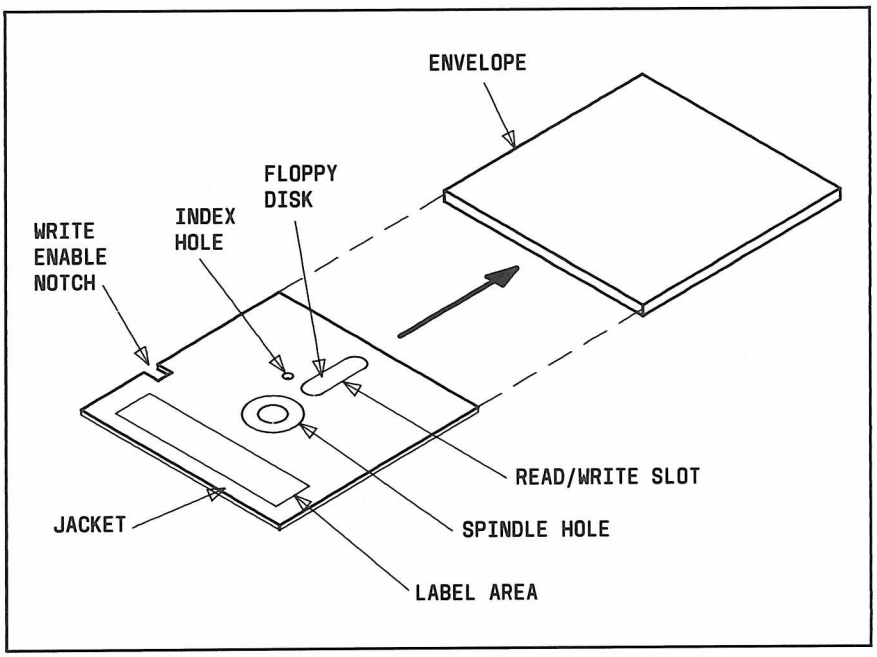


Figure B-1. Floppy Disk

Each floppy disk is permanently enclosed in a jacket. You can either write information onto or read information from a floppy disk. The ability to write on a disk is controlled by the write-enable notch (See Figure B-1). If this notch is uncovered, the disk drive CAN write information on the disk. If the notch is covered, the disk drive CANNOT write on the disk. This is referred to as being "write protected."

Write protect is important to know because you will probably have certain disks that contain programs or information that you do not want destroyed or altered. To protect these disks from being accidentally erased or written over, always keep the write enable notch covered. Cover the notch with an opaque self-adhesive tab. These tabs are normally supplied with the floppy disks. If at some later date you want to write on the disk again, you can remove the tab.

PRECAUTIONS

When handling floppy disks:

1. Never touch the recording surface through the read/write slot or the index hole.

2. Do not bend.

3. Keep floppy disks away from strong magnetic fields, direct sunlight, excessive moisture, or extremes in temperature.

4. Keep floppy disks in their protective envelopes when you are not using them.

5. Store in an upright position. (Never leave in disk drive.)

6. Fill out labels before you place them on the jacket. If you must write on a label that is on a floppy disk, use a felt tip pen. A ball point pen or pencil can damage the recording material.

INSERTING FLOPPIES

Figure B-2 shows you how to insert a floppy disk into a floppy drive.

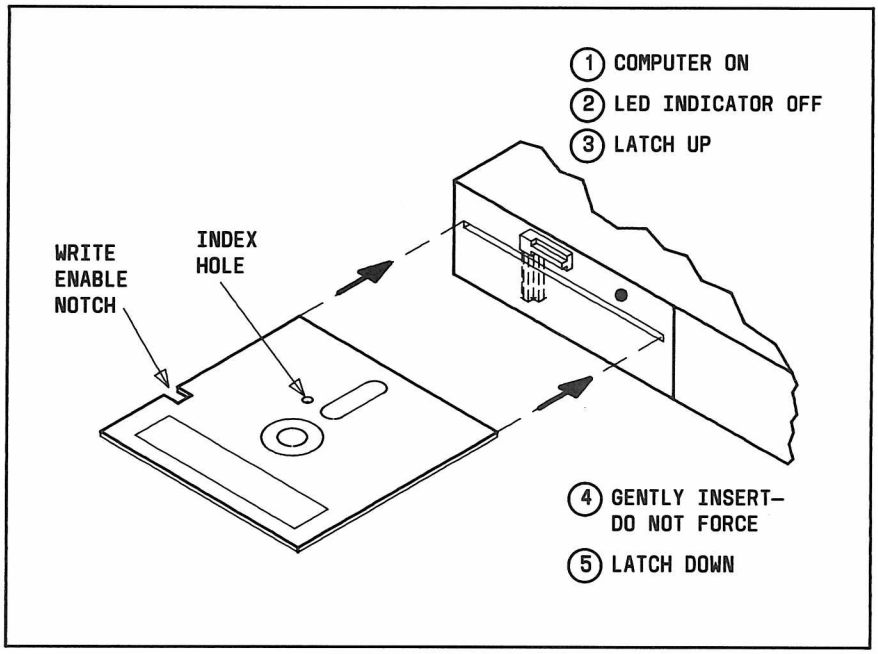


Figure B-2. Insert Floppy Disk

REMOVING FLOPPIES

Figure B-3 shows you how to remove a floppy disk from a floppy drive.

Caution: Never remove a floppy disk while the floppy disk drive light is on. You can damage the disk or destroy the information stored on it.

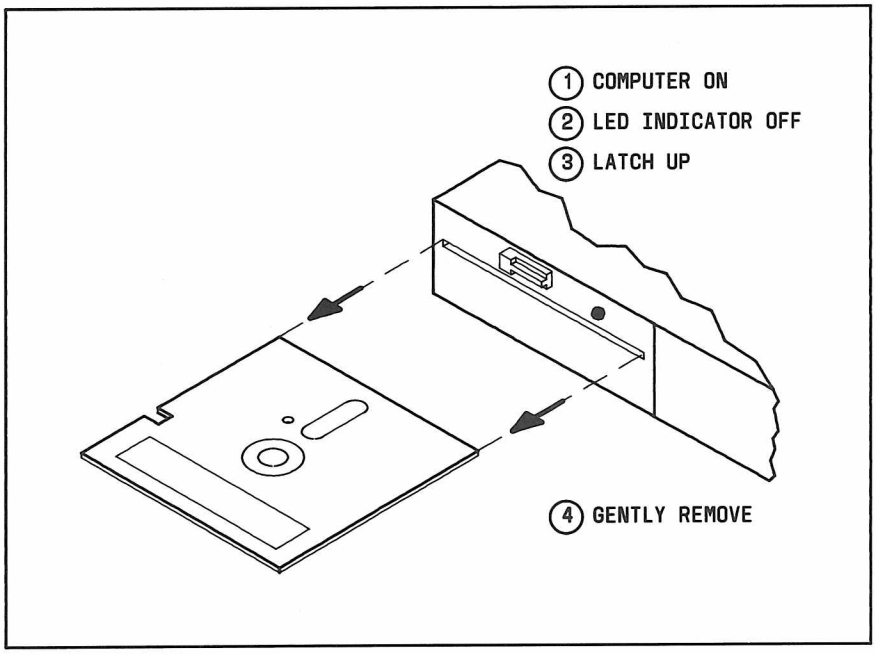


Figure B-3. Remove Floppy Disk

TYPE OF FLOPPY DISKS TO USE

The floppy disks that you use in your 3B2 Computer should be:

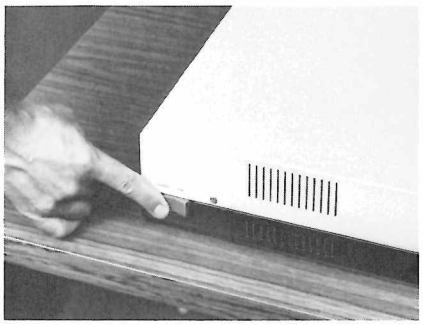
- Double-density
- Double-sided
- 96 tracks per inch
- Soft sectored
- Free of defects.

READING AND WRITING

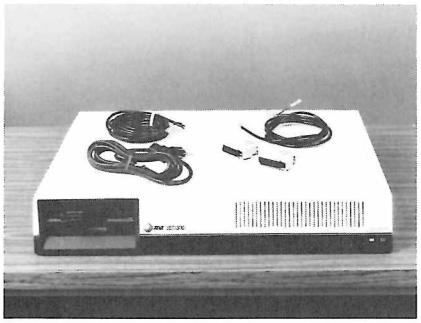
A chapter in your *3B2 Computer System Administration Utilities Guide* explains the different uses and procedures to read or write on floppy disks. Before new floppy disks can be written on, they must be formatted using a simple administration procedure shown in Chapter 4.

Appendix C

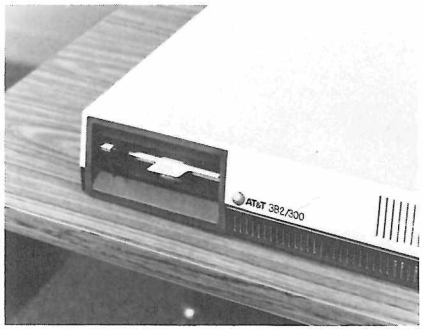
MOVING AND PACKING



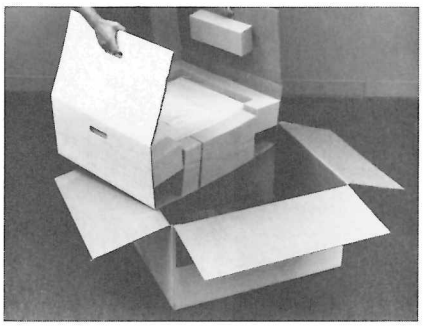
(a) Turn Off



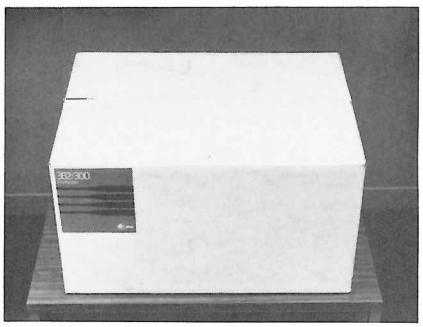
(b) Remove Connections



(c) Insert Cardboard Floppy



(d) Pack



(e) Prepare for Shipping

Figure C-1. Moving and Packing

Appendix D

PINOUTS

8-PIN MODULAR JACK	25-PIN RS-232-C JACK OR PLUG FOR PRINTER OR TERMINAL	25-PIN RS-232-C PLUG FOR AUTOMATIC DIAL MODEM
1 PROT GRD	1 FRAME GROUND	1 FRAME GROUND
2 RESERVED	4 RESERVED	5 RESERVED
3 TXDO	3 TRANSMIT DATA	2 TRANSMIT DATA
4 DTRO	8 DATA TERMINAL READY	20 DATA TERMINAL READY
5 RXDO	2 RECEIVE DATA	3 RECEIVE DATA
6 DCDO	20 DATA CARRIER DETECT	8 DATA CARRIER DETECT
7 SIG GRD	7 SIGNAL GROUND	7 SIGNAL GROUND
8 RESERVED	5 RESERVED	4 RESERVED
SEE PIN DIAGRAM BELOW		

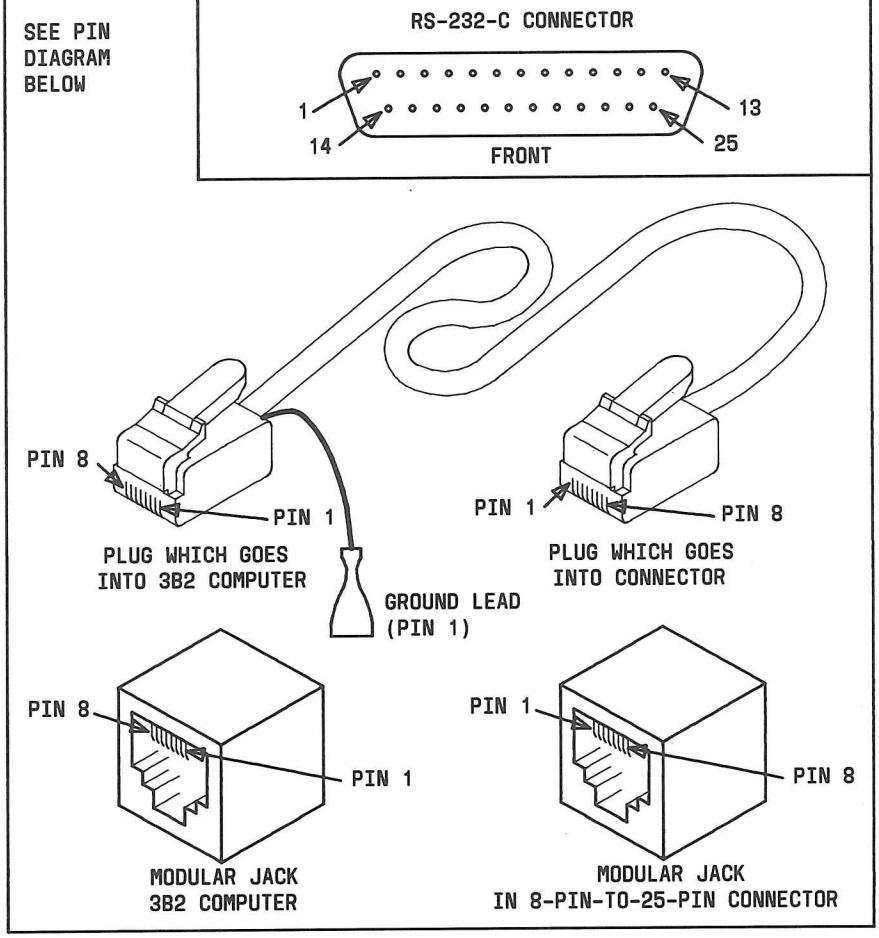


Figure D-1. Pinouts for Serial Ports and RS-232-C Connectors

Appendix E

SPECIFICATIONS

FEATURES

- WE 32000 MICROPROCESSOR PROVIDES 8-, 16-, OR 32-BIT OPERATIONS AND MEMORY MANAGEMENT (RELOCATION AND PROTECTION CAPABILITIES)
- UP TO 18 RS-232-C INPUT/OUTPUT (I/O) PORTS (TWO PORTS ARE STANDARD; UP TO FOUR I/O EXPANSION PORTS CARDS CAN BE ADDED, EACH PROVIDED FOUR ADDITIONAL SERIAL, ASYNCHRONOUS PORTS.)
- UP TO FOUR PARALLEL PRINTER PORTS (ONE ON EACH I/O EXPANSION PORTS CARD)
- UP TO 2 MEGABYTES (MB) OF MAIN MEMORY (1/2, 1, OR 2 MB OPTIONAL)
- 5.25-INCH FLOPPY DISK DRIVE HOUSED WITHIN THE BASIC CABINET WITH A CAPACITY OF 720 KILOBYTES (KB)
- 10 OR 30 MB FIXED-MEDIA HARD DISK HOUSED WITHIN THE BASIC CABINET
- FOUR-SLOT EXPANSION BACKPLANE
- FIRMWARE WHICH PROVIDES AUTOMATIC BOOTING, SANITY TESTS, AND DIAGNOSTICS AT POWER-UP
- OPTIONAL 3BNET
- OPTIONAL AUTOMATIC DIAL MODEM
- OPTIONAL DOT-MATRIX OR LETTER-QUALITY PRINTER
- OPTIONAL TELETYPE MODEL 5410, 5420, OR 5620 TERMINALS
- MEETS FEDERAL COMMUNICATIONS COMMISSION CLASS A STANDARDS AND UNDERWRITER'S LABORATORIES APPROVAL

PHYSICAL SPECIFICATIONS

TEMPERATURE	40° TO 100°F @ SEA LEVEL
	(4.4°C TO 37.7°C)
	40° TO 93° @ 6000 FT ASL
	(4.4° TO 34°C)
HUMIDITY	20 TO 80% NONCONDENSING

POWER REQUIREMENTS:

AC VOLTAGE	115 OR 220-240 V~
FREQUENCY	50/60 HERTZ
POWER CONSUMPTION	LESS THAN 200 WATTS (MAXIMUM CONFIGURATION)

PHYSICAL SIZE:

DIMENSIONS	22"W X 17"D X 4"H (56 CM W X 43 CM D X 9 CM H)
WEIGHT	30-40 LBS. (9-16KG)
CABINET LOAD	SUPPORT EXTERNAL LOADS TO 60 LBS. (24 KG)

Figure E-1. 3B2/300 Computer Specifications

GLOSSARY

The following is a universal glossary for all 3B2 Computer documents. For your convenience, terms are located here in one document. Your Help Utilities also contains a glossary of UNIX System terms and symbols.

8-bit ASCII interface
An interface standard that allows 8-bit coded data to be transmitted between computers or between a computer and a terminal.

ASCII Code American Standard Code for Information Interchange — An 8-bit code that is used when transmitting data between computers or between a computer and a terminal.

asynchronous terminal
A terminal that operates at a speed not associated with any particular portion of the computer it is connected to.

bits per second
Data transmission speed.

bit One binary digit (0 or 1).

block One or more bytes treated as a unit for reading and writing data.

byte 8 bits — the equivalent of one character of text.

command A word or string of letters and/or special characters that tells the computer what to do.

command line A set of commands and arguments to perform one or more processing tasks. Commands always begin immediately after the shell prompt and are separated with semicolons. They can continue for several (terminal) lines, up to 256 characters.

console The main terminal from which your 3B2 Computer is controlled. The console terminal connects to the console port.

diagnostics A series of tests your 3B2 Computer performs to check its operation.

contty Name of the unlabeled serial port that comes with a 3B2 Computer.

directory A special type of file containing the names of other files (including directories) and a pointer to a control block used to access these files.

DUART Dual Universal Asynchronous Receiver Transmitter. Two integrated circuits that each perform serial-to-parallel and parallel-to-serial conversion of digital data.

Electronic Industries Association
An organization that maintains standards for the electronic industry.

encryption data
To encode data so that it cannot be read without knowing the key.

feature card A circuit board that provides a hardware interface to connect peripherals to your 3B2 Computer or to expand its network capabilities.

file A collection of data thay has a name.

file system A file arrangement on a segment of hard disk that can be mounted or unmounted.

firmware Microprograms, usually on read-only memories.

firmware mode
A special mode of the 3B2 Computer which allows you to format floppy disks, make floppy keys, run diagnostics, and boot programs from hard or floppy disks.

floppy disk A flat, flexible disk used as a removable storage media for saving or retrieving programs and data.

floppy disk drive
A device that allows your 3B2 Computer to read and write information to and from floppy disks.

floppy key A floppy disk that allows you to enter the firmware mode if you forget your firmware password.

formatted floppy
A floppy disk that has been subdivided by a computer program so that data can be read from and written to specific areas on the disk.

full duplex terminal
A terminal that can send and receive data independently and simutaneously.

hard disk drive
A disk storage device enclosed inside your 3B2 Computer used to store large amounts of data in a short amount of time.

hardware The physical components of your 3B2 Computer.

inode A file control block that contains file information such as the number of directory entries linked to the inode, list of data blocks, size, etc. Inodes specify how many inode table entries to allocate.

K An abbreviation for the number 1024. The " K" comes from kilo, meaning one thousand. For example, one kilobyte equals 1 Kbyte equals 1024 bytes.

login A string of letters and/or numbers that lets the 3B2 Computer know with whom it is communicating.

M An abbreviation for the number 1,048,576. The " M" comes from the prefix mega, meaning one million. For example, one megabyte equals 1,048,576 bytes.

modem A device used to transmit digital data over voice telephone lines.

modular connector An RS-232-C serial interface that uses an 8-pin modular telephone jack or plug.

mouse A special terminal device that moves a cursor or enters commands.

NVRAM Nonvolatile RAM — Used to save essential information that is normally lost when power is removed.

parallel More than one bit at a time.

parity A method of detecting certain data transmission errors.

password Passwords are encrypted and used as an extra means of security. Passwords can be any

mixture of numbers, special characters, or alpha characters (uppercase or lowercase).

peripherals Devices that can be connected to your 3B2 Computer, such as terminals, printers, or modems.

port A connection between a computer and an input/output device through which data is transferred.

PROM A type of ROM that can be programmed.

prompt A symbol or a string of letters and/or numbers that will let you know when you can enter a command. $ is the UNIX System shell default prompt.

queue A list of processes put in sequential order awaiting execution.

RAM Random Access Memory — A type of memory in which you can directly access any location in memory. Read Only Memory — A type of memory chip that can be read but cannot be written. It is used in microcomputers that always execute the same program.

root directory The highest ranked directory in a UNIX System file system. Root is the directory from which a file system is built, and it is also known by the symbol /.

root login The login ID that is used when you want to do administration work or work that requires you to be in the firmware mode. Sometimes called super-user.

RS-232-C The standard serial interface adopted by the Electronics Industry Association.

serial One bit at a time.

software The programs that are available to your 3B2 Computer to make it perform its functions.

spool directory
A directory containing files that are to be transmitted over the Basic Network.

super-user See " root login" above.

simple administration menu
A listing of simplified system administration options or routines from which you make a selection.

system board
The circuit card that contains the main logic circuits comprising the processing center of a 3B2 Computer.

terminal A device with input capability similar to a typewriter that allows you to communicate with your 3B2 Computer.

Index

A

access permission 4-18
accessing the main menu 4-40
Accessing the User Management Menu 4-42
addgroup subcommand 4-38
adduser subcommand 4-38
adduser, direct method 4-44
adduser, example of use 4-40
admpasswd subcommand 4-35
automatic dial modem 2-16
automatic dial modem pinouts D-1
automatic power shut down 2-4

B

backup subcommand 4-31
baud subcommand 4-37

C

cable access door 3-11
cables and connectors A-1
checkfsys subcommand 4-29
chgloginid subcommand 4-39
chgpasswd subcommand 4-39
chgshell subcommand 4-39
connector pinouts D-1
connectors and cables A-1
console port 3-13

contty port 3-13
cpdisk subcommand 4-29

D

data encryption 4-19
datetime subcommand 4-36
debug monitor 2-9
delgroup subcommand 4-38
deluser subcommand 4-38
DEMON 2-9
devices 2-10
DIAGNOSTIC light 3-8
dimensions E-1
direct access to Simple Administration tasks 4-44
disable subcommand 4-37
disk 2-7
disk management menu subcommands 4-29
disk space 4-45
diskrepair subcommand 4-28
diskreport subcommand 4-28
diskuse subcommand 4-32
display subcommand 4-30
documentation 6-1
Draft Quality Printer 2-14

E

enable subcommand 4-37
environment 3-1
erase subcommand 4-29
error message 5-2
Expanded Input/Output Capability 2-6
expansion serial ports 2-6

F

features E-1

Figure 1-1
AT&T 3B2/300 Computer 1-1
Figure 2-1
3B2 Computer Features 2-3
Figure 2-2
TELETYPE Model 5410 Terminal 2-11
Figure 2-3
TELETYPE Model 5420 Terminal 2-12
Figure 2-4
TELETYPE Model 5620 Dot-Mapped Display Terminal 2-13
Figure 2-5
Draft Quality Printer 2-14
Figure 2-6
Letter Quality Printer 2-15
Figure 2-7
AT&T Automatic Dial Modem 2-16
Figure 3-1
Vertical Mounting Bracket 3-3
Figure 3-2
3B2 Computer with Model 5620 Terminal 3-5
Figure 3-3
Unpacking 3-7
Figure 3-4
Front View 3-9
Figure 3-5
Left Side 3-10
Figure 3-6
Right Side 3-11
Figure 3-7
Rear View 3-12
Figure 3-8
Model 5410 Setup 3-15
Figure 3-9
Model 5420 Setup 3-16
Figure 3-10
Model 5620 Setup 3-16
Figure 3-11
Console Port Connection 3-19
Figure 3-12
Male RS-232-C Connector and Terminal Cable 3-19

Figure 4-1
Power-Up Sequence 4-5
Figure 4-2
Initial Terminal Display 4-6
Figure 4-3
Initial Response to Setup Command 4-7
Figure 4-4
Setting System Clock-Example 4-8
Figure 4-5
Assigning Login-Example 4-9
Figure 4-6
Assigning root Password-Example 4-10
Figure 4-7
Renaming 3B2 Computer-Example 4-11
Figure 4-8
Shutdown Broadcast Message-Example 4-13
Figure 4-9
Making a Floppy Key-Example 4-14
Figure 4-10
Changing Firmware Password-Example 4-15
Figure 4-11
Simple Administration Menu Structure 4-27
Figure 4-12
Accessing the Main Menu 4-40
Figure 4-13
Accessing the User Management Menu 4-42
Figure 4-14
Using the adduser Subcommand 4-43
Figure 4-15
Using adduser Directly 4-44
Figure 5-1
Troubleshooting Chart 5-2
Figure A-1
Cables and Connectors for 3B2 Computer Options A-1
Figure B-1
Floppy Disk B-1
Figure B-2
Insert Floppy Disk B-3
Figure B-3
Remove Floppy Disk B-4

Figure C-1
Moving and Packing C-1
Figure D-1
Pinouts for Serial and RS-232-C Connectors D-1
Figure E-1
3B2/300 Computer Specifications E-1
File management menu subcommands 4-31
fileage subcommand 4-32
filesize subcommand 4-32
firmware 2-5
firmware password 4-14
firmware subcommand 4-33
floppy disk drive 3-8
floppy disk, format B-5
floppy disk, insert B-3
floppy disk, read B-5
floppy disk, remove B-4
floppy disk, write B-5
floppy disks B-1
floppy disks, care of B-2
floppy disks, types B-5
floppy key 4-14
floppy key, security 4-20
floppykey subcommand 4-33
forgot password 5-2
format subcommand 4-29

G

getty command 4-37

H

hard disk 2-7
hard disk replacement 2-7
harddisk menu 4-30
hardware features 2-2

I

installing utilities 4-45
installing utilities, prerequisites 4-45
installing utilities, procedure 4-46
installpkg subcommand 4-34
interference 5-2

L

Letter Quality Printer 2-15
local area network, 3BNET 2-6
log off 4-12
lost password 5-2
lsgroup subcommand 4-38
lsuser subcommand 4-39

M

Machine management menu subcommands 4-33
makefsys subcommand 4-30
makehdfsys subcommand 4-30
menu options 4-41
menu prompt 4-41
menus 4-23
modadduser subcommand 4-39
modem 2-16
modem pinouts D-1
modgroup subcommand 4-39
moduser menu subcommands 4-39
mountfsys subcommand 4-31
moving C-1

N

nodename subcommand 4-36
nonvolatile RAM 2-2

O

operating specifications E-1
operating system 2-4

P

Package Management Subcommands 4-34
packing C-1
partitioning subcommand 4-30
passwords 4-19
passwords, selecting 4-19
peripherals 2-10
pinouts D-1
pins for RS-232-C D-1
placement of 3B2 Computer 3-2
pound symbol (#) 4-45
POWER light 3-8
power receptacle 3-12
power requirements 3-1
power shutdown 4-12
power switch 3-10
powerdown 4-12
powerdown subcommand 4-33
printers 2-14
programming languages 2-9

R

Random Access Memory Expansion 2-7
reboot subcommand 4-33
reminders 1-4
removepkg subcommand 4-35
removing utilities 4-48
removing utilities, prerequisites 4-48
removing utilities, procedure 4-48
RESET switch 3-12
restore subcommand 4-32
RS-232-C jacks 3-13
RS-232-C ports 2-2

RS-232-C pinouts D-1
runpkg subcommand 4-35

S

safety E-1
security 4-18
security, helpful hints 4-21
serial ports 2-2
service 5-1
setup subcommand 4-36
setup, software 4-7
4-14
setup, terminal 3-14
shell prompt 4-41
shutdown 4-12
4-46
Simple Administration menu structure 4-27
Simple Administration menus 4-24
simplified administration example 4-40
size 3-1
soft power down 4-12
software features 2-4
Software Management Menu Subcommands 4-34
specifications E-1
standard parallel printer port 2-6
store subcommand 4-32
sysadm command 4-24
syspasswd subcommand 4-36
System Administration Menu 4-24
System Diagnostic Menu Subcommands 4-28
system setup 4-25
System setup menu subcommands 4-35

T

terminal setup 3-14
terminal, connect to 3B2 Computer 3-18
terminals 2-10
time-of-day clock 2-2

trouble 5-1
tty management menu subcommands 4-37
turn off 4-12

U

umountfsys subcommand 4-31
User management menu subcommands 4-38
Using the adduser Subcommand 4-43

W

weight E-1
whoson subcommand 4-34
workbenches 2-9

Your comments and suggestions are appreciated and will help us to provide the best documentation for your use.

1. How would you rate this document for COMPLETENESS? (Please Circle)

Excellent		Adequate		Poor
4	3	2	1	0

2. Identify any information that you feel should be included or removed.

_____

_____

3. How would you rate this document for ACCURACY of information? (Please Circle)

Excellent		Adequate		Poor
4	3	2	1	0

4. Specify page and nature of any error(s) found in this document.

_____

_____

5. How would you rate this document for ORGANIZATION of information? (Please Circle)

Excellent		Adequate		Poor
4	3	2	1	0

6. Describe any format or packaging problems you have experienced with this document.

_____

_____

7. Do you have any general comments or suggestions regarding this document?

_____

_____

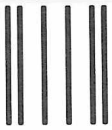
8. We would like to know a little about your background as a user of this document:

A. Your job function _____

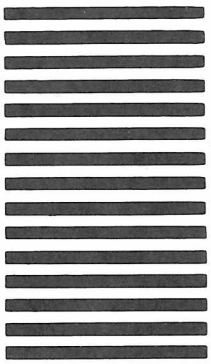
B. Number of years experience with computer hardware: operation _____ , maintenance _____ .

C. Number of years experience with computer software: user _____ , programmer _____ .

Your Name _____ Phone No. _____
Company _____
Address _____
City & State _____ Zip Code _____



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO 1999 GREENSBORO, N C

POSTAGE WILL BE PAID BY ADDRESSEE

DOCUMENTATION SERVICES
2400 Reynolda Road
Winston-Salem, N.C. 27106-9989

Do Not Tear—Fold Here and Tape